WELLBASED

D3.4 Final report on the implementation of the urban programme

WP3 - Pilots preparation & implementation

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WP3 - Pilots preparation & implementation

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List of acronyms

H2020 - Horizon 2020

- WUP Wellbased Urban Programmes (WUPs)
- WP Work Package
- D3.1 D3.1 Implementation plan for each pilot site
- D3.2 Deliverable 3.2 Midterm Recruitment Report
- D3.3 Deliverable 3.3 Intermediary report on the implementation of the urban programme
- NGO Non-governmental organization
- T Temperature





H – Humidity

CO2 – Carbon Dioxide

GDPR – General Data Protection Regulation....

IG - intervention group

CG - control group

N/A — not applicable

SCM — Smart City Monitor

MUPIs — Spanish term for Urban Information Point such as bus stop, other advertising panels across the city. The English term is OPPI-Optical Point of Promotion and Information.

Executive summary

The deliverable D3.4 presents the final report on the implementation of WELLBASED Urban Programme (WUP) interventions aimed at reducing energy poverty conducted under the WELLBASED project, funded by Horizon 2020. The report details targeted actions across six European pilot cities (Edirne, Jelgava, Leeds, Heerlen, Óbuda, Valencia) and improving health outcomes through evidence-based approaches and systemic data collection, aligned with Work Package 3 (WP3). Activities included socio-energy audits, energy efficiency training, community engagement, and health and indoors Temperature / Humidity / CO2 level monitoring. Recruitment, interventions, and data collection processes were coordinated to address individual, community, and structural factors of energy poverty as per the social-ecological model. Key insights and lessons learned emphasize the value of localized engagement, cross-sector collaboration, and the challenges of participant recruitment and retention and behaviour change in a vulnerable population. The findings provide a framework for replication by other European cities and policy recommendations to enhance the effectiveness of future urban health initiatives targeting energy poverty.







Introduction

1.1 Deliverable objective and scope

The objective of this deliverable, D3.4 'Final report on the implementation of the urban health programme', is to provide a detailed account of the implementation actions (targeted interventions) in six pilot cities of the WELLBASED project, which aims to design, implement and evaluate a comprehensive urban programme to reduce energy poverty and its effects on health and wellbeing, built on an evidence-based approach. This deliverable specifically addresses activities conducted under Work Package 3 (WP3), which encompasses the preparation, implementation, and monitoring of these interventions.

WP3 was centred on achieving specific project's objectives, "To foster the implementation of urban planning that considers health as a horizontal challenge." This work package is dedicated to ensuring that the interventions are designed and implemented accordingly to the plan and were supported during the implementation phase of these actions in each pilot city, with support froth the project partners facilitating the coordination of recruitment, interventions, training sessions, and the systemic data collection.

In the context of the WELLBASED project, it is crucial to distinguish between the roles and objectives of Work Package 3 (WP3) and Work Package 4 'Evaluation & data analysis' (WP4), which addresses different aspects of the WELLBASED project. WP4 is primarily focused on the 'Evaluating the short- and mid-term effects of the programme on specific health conditions and well-being indicators' along to the 'Analysing the social and gender determinants linked to the intervention and its effects'. While WP3 provides critical data inputs and ensures the successful implementation of interventions, the evaluation and analysis including of these interventions and qualitative interviews fall within the WP4 and other work packages.

The scope of D3.4, therefore, is to present the intervention actions covering actions from the initial planning phase through the final stages of interventions, spanning from July 2022 to September 2024.

We believe that such report will serve as a valuable resource for European cities addressing energy poverty, providing a comprehensive list of interventions actions in different European cities and regions, challenges that were overcome, and mitigation strategies. It offers a solid foundation for policymakers and stakeholders, enabling them to anticipate and overcome potential obstacles in their local contexts. The report emphasizes the importance of collaboration, stakeholder engagement, and the integration of health considerations into urban planning practices.





1.2 Deliverable methodology

The implementation process within WP3 was structured into several key phases:

Preparation Phase: This initial phase involved the development of intervention plans for each pilot city, aligning the actions with the social-ecological model. Information regarding the preparation phase could be found in D2.3 and D3.1 (Subtask 3.1.1. Appointment of a pilot site coordinator & pilot planning & preparation of the legal, organisational and procedural components and Subtask 3.1.3. Technical components preparation and Subtask 3.1.4 Plot sites training)

Recruitment and Engagement: The recruitment of participants was critical to the success of WP3. Using localized strategies such as community meetings, targeted outreach, and word-of-mouth communication, the project engaged households to participate in intervention activities. Despite these efforts, the number of participants recruited was lower than initially anticipated. Each pilot city provides their reflections on the recruitment process, offering insights into what worked well and the challenges they encountered in the subsequent section. (Subtask 3.1.5. Recruitment of participants)

Intervention Implementation: The interventions, tailored to each city's context, were implemented over a defined period. Actions included socio-energy audits, distribution of energy efficiency kits, home improvements (some pilots), and community-building activities. The interventions were structured to address the different levels of influence identified in the social-ecological model. (Task 3.2 Pilots implementation and follow up in the six adapted urban programmes and Subtask 3.2.2. Implementation of the different interventions according to the pilot's specific urban programmes.)

Data Collection and Monitoring: A standardized approach to data collection was employed across all pilot sites to ensure consistency and comparability. Data included environmental measurements: temperature, humidity, CO2 levels (T/H/CO2), health measurements, regular collection data through questionnaires, and qualitative surveys. The use of T/H/CO2 sensors allowed for near real-time monitoring of indoor conditions, while surveys, health measurements captured data in energy consumption and health outcomes. Data collection was coordinated to feed into the broader analysis activities under WP4. (WP3 Subtask 3.2.1. Technical components deployment. We shall note that data collection is also part of WP4 'Task 4.2 WELLBASED platform creation and data gathering'.)

Continuous Monitoring and Adaptation: Throughout the implementation, regular monitoring meetings were conducted with city pilots teams and relevant partners to assess progress, address challenges, and make necessary adjustments to the intervention strategies. These sessions ensured that the interventions remained aligned with the social-ecological framework and adapted to the specific needs of each pilot site. (WP3 objective: To ensure the proper and good implementation of the pilot plans through proper monitoring.)

In addition to documenting the interventions, **D3.4 highlights key insights and lessons learned** from the implementation process in each pilot city. For every intervention, specific challenges and obstacles encountered are detailed, alongside







the corresponding risk mitigation actions that were implemented to ensure continuity and success. This deliverable provides a comprehensive overview of the lessons learned from WP3 activities, offering a comparative analysis of the experiences across the pilot cities.

We included in D3.4 a success stories from the pilots that captures a particular achievement or positive outcome of the interventions, demonstrating the actions undertaken. These stories provide valuable context and illustrate how the project's targeted efforts have contributed to addressing energy poverty and improving well-being in each location.

The deliverable also includes a dedicated section on risks encountered, detailing mitigation actions at the pilot level for each intervention. Along to that each pilot provides valuable insights through lessons learned, reflecting diverse experiences from six cities, contributing to future urban health initiatives targeting energy poverty.

This structured approach ensures that the deliverable offers a thorough understanding of the WP3 implementation process, emphasizing practical experiences, effective strategies, and outcomes. It also ensures a clear distinction between the implementation focus of WP3 and the evaluative functions of WP4.

Regarding the process followed to complete the deliverable, a data collection methodology was applied across pilot cities to ensure comparability and standardization. Pilots teams were responsible for organizing data into tables by topics such as intervention actions, data collection, and health measurements. This method allowed for consistent consolidation of up-to-date information from various sources, including program implementation activities, field visits, and participant feedback.

1.3 Relation to other WPs and deliverables

D3.4 presents a comprehensive overview of the progress achieved in implementing the urban health programme in six pilot cities. As the final deliverable for this phase, it provides the completion of activities and ensures that the implementation actions are clearly aligned with WP3 and WELLBASED project objectives, building upon the groundwork established in previous deliverables and work packages (see a Figure 2 below).







Figure 1 Relation to WP2 and WP3 and other deliverables

- The first steps were done in D2.3, which established the six adapted Wellbased Urban Programmes (WUPs), and played a pivotal role in the methodology for the deliverables in WP3 including this one D3.4.
- The foundation for D3.4 was laid during the preparation of D3.1, which outlined the implementation plan for each pilot site and then in D3.3.
- D3.4 adopts a standardized structure to maintain continuity with prior deliverables while incorporating updated and finalized information. This ensures consistency across all documents, facilitating comparison and coherence throughout the project.
- To document the recruitment efforts and explain why the recruitment targets were not fully met, a
 justification report as a separate report was produced, detailing the various strategies implemented
 during the recruitment phase and their outcomes.
- D3.4 integrates data and findings from the Monitoring Progress Project Pilots report (June to October 2022), led by TNO. Here WP3 under TNO lead focused on the implementation and monitoring of the six adapted urban programmes, covering aspects such as participant recruitment, intervention implementation, data collection, and health measurements, including device setup and questionnaire administration.

2 Monitoring strategy in action

Implementing the adapted urban programmes aimed at tackling energy poverty and its effects on health and wellbeing in different cities requires systematic monitoring and evaluation to ensure its effectiveness and success. The approach to the monitoring was developed together with pilots and other consortium partners. This was done during the Wellbased consortium meeting in Valencia (June 2022). The overall approach to the monitoring framework was described in D3.1, and a detailed description was provided in the accompanied document 'Monitoring progress Wellbased pilots, June – October 2022' as input for D3.2 and D.3.3. In D3.3 the lessons based on pilots' experiences regarding recruitment are described.





This section describes the general lessons learned until August 2024. We focused on stimulating knowledge sharing between pilots and effective collaborations within pilots and between project partners. These factors are both key in a successful pilot and monitoring strategy.

In September 2024 lessons learned during the monitoring task from pilots are retrieved during the TNO workshop for the Wellbased consortium meeting in Leeds. The input retrieved during this workshop will be processed in future deliverables.

Usefulness of monitoring

Monitoring the progress of pilots regarding recruitment, implementation of intervention and data-collection gives the possibility to act in time when challenges occur. It can show the possible lack of progress, challenges, and solutions and make clear what needs to be done to achieve the promised goals as a consortium. It is also easier to organize collective thinking about the reasons for the possible delay, solutions to challenges, etc.

The usefulness of monitoring increases with a focus on the stories behind the stories. This can provide an explanation on the growing or lacking numbers retrieved in the recruitment process. There might be a reason, be it a summer holiday or a political change in a researched area that causes decrease in expected collected data. The reason for this is first detected by the people collection the data.

How to stimulate knowledge sharing between pilots

Organizing workshops or online webinars (such as the group meetings) allowed for collective action on challenges, organize aid for pilots struggling and facilitate peer-to-peer learning. Monthly interactions where concerns, best practices and questions can be discussed, seemed a good way for pilots to express progress.

The possibility of organizing work sessions for pilots to share concerns and best practices elevates the amount of possible solutions and there is the option of feedback whether certain solutions worked or not. It is a peer-to-peer cooperation that is mostly valued at physical consortium meetings but can be effective online. Especially if specific webinars and learnings can be translated by attendees in concrete actions and follow-up actions, that feedback into the monitoring progress and result.

During the first couple consortium meetings the value of sharing more practical orientated experiences became clear. Most of the work of the pilots is in contact with the target group and with house visits. By sharing these experiences with the group, the pilots were given a platform. They experienced this as valuable.





Recommendations for effective collaborations within pilots and project partners

Effective collaborations on several levels are an important factor in success. During the monitoring task we learned 1) key lessons for effective collaboration *within pilots* for pilots' success and 2) key lessons for effective collaboration *between project partners* for successful monitoring.

For a pilots' progression, it seemed important that there is a mix of partners engaged: social, energy, and research partners. Since energy poverty touches into social and energy topics, and doing research requires specific knowledge, all partners are needed. In addition, pilots can learn from each other by doing "pilots within pilots". For example, instead of starting recruitment in all pilots at the same time, one pilot can start by testing a certain recruitment strategy and when this strategy appears effective it can be rolled out into the other pilots. This will help to prevent overspending due to ineffective recruitment strategies.

For successful monitoring it is key that it is clear which type of data is ideally monitored, where this data is stored and who can access the data. Because of privacy protection, not all data is accessible for everyone. This process takes time and requires different partners to coordinate their wishes on what is monitored, how monitoring information should be presented, how monitoring information can be obtained and in what frequency monitoring information is provided. Therefore, it is important to make sure there is enough time to communicate about the roles and responsibilities.

For an effective collaboration between partners coming from different backgrounds such as poverty research, energy and health it is key to be aware of each other's blind spots when it comes to knowledge on each other's expertise. Here it is important to do something that is often done for the target group of vulnerable households: translate the monitoring results in such a way that is understandable for all project partners. This helps in supporting each other along the project.

Do's for future projects with monitoring tasks

Future projects that also require monitoring of pilots' progress can include several do's for successful monitoring:

- Reserve enough time before for monitoring. Monitoring requires quite some (time-)effort.
 Therefore, having an independent partner for the monitoring task seems to be a good idea.
 One of the learnings is that this partner should have easy access to the actual database and data-collection numbers. As TNO we were now dependent on pilots and consortium partners for analysis on the progress of the recruitment, interventions and data-collection.
- Make short feedback loops possible (e.g., calls, chats, online communication) to help get insight on pilots' challenges, solutions and questions.





- Create collaboration and monitoring roles when preparation of the first pilot activities start. Recruitment was the first topic to be monitored in this project, so roles and responsibilities should be coordinated before recruitment starts.
- Create justification reports to make clear what efforts pilots and the consortium performed to reach the promised goals. Discuss who is responsible for making these reports.
- Make sure you create reflection moments during the project for the whole consortium to stay conscious about the fact that research is done with vulnerable households. This means it is not always realistic to be solely project goal- and result-driven. It is about alleviating households and laying the foundation of a just energy transition.
- Include the information gathered by the household visits. They are the first to gather a trend that can only later be detected in the data collection.
- Create a common language and use the same software and programs to collect the data. Make sure that everybody who is working with the program is up to date. If necessary, organize a general meeting once a while to see if everybody is still on board. This common language could bridge the differences between social science and more technique orientated participants. But also between partners coming from different backgrounds, like health, energy and poverty research.
- Create a safe environment with the pilots so that they share their successes as well as their challenges

3 Overview of the intervention actions across pilots

The interventions' approach adopted by WP3 is guided by the social-ecological model, also known as the Dahlgren-Whitehead 'rainbow model' (1991) (see Figure 2). This model served as the foundation for designing and implementing interventions, emphasizing the interplay between individual, community, and

societal factors that impact health outcomes and was highlighted in D2.3 where Wellbased adapted Urban Programmes (WUPs) were in focus and 'The social ecological model: a theoretical approach to define the WUP's' has the dedicated section.

The social-ecological model provides a multilayered framework for understanding how different levels of influence, from individual behaviours to broader social and economic conditions, contribute to energy poverty and its impact on health. The model was used to tailor interventions that address these varied



Figure 2 The social-ecological model, also known as the Dahlgren-Whitehead 'rainbow model' (1991)







levels within each pilot city. For example, socio-energy audits and energy efficiency training target individual behaviours and household practices, while community engagement and policy recommendations aim to create supportive social and environmental conditions.

Table 1 Interventions that address varied levels according to the social-ecological model

Layers	Examples of interventions for the layer					
Layer1IndividualLifestylefactorsPractices oriented to improve individual lifestylesregarding health, energy efficiency, energy costs,residential comfort, etc.	Energy audit, Access Home Sensor Data, HealthCoaching, Energy advice Bills, Training Materials					
Social and Community networks Activities oriented to strengthen communities, mainly those oriented to promote community support and mutual aid, and therefore moving from individual to collective support approach	Attendance at group meetings					
Layer 3 Living and working conditions Practices oriented to improve the access to a dignified work and life conditions, e.g. comfortable and healthy homes and workplaces 3.1 Structural interventions 3.2 Domestic Appliances Replacement 3.3 Delivery and installation of an Energy Efficiency Kit	Structural Interventions include: Heating System, Home Insulation, Windows Replacement, Front Door Replacement, Door Replacement, Personalized Home Renovation, Handy Man Services Domestic Appliances Replacement includes: Washing machine, stove, Air conditioner, Air purifier, Fridge, Dish Washer, Oven Energy Efficiency Kit includes LED bulbs, windows&doors stripes, power meter, etc					
Layer 4 General socio-economic, cultural and environmental conditions Practices that aim to make structural changes on the socio-economic context, mainly referring to both energy and to household policies Policy recommendations	Supportive policies against energy poverty Layer 4 has not been included directly into the interventions provided to each participant since it involves policy makers, and it is related to WP5 and the final outputs of the project.					

The following Table 2 provides a snapshot of the interventions that were implemented across six pilots cities during WELLBASED project.

Table 2 Intervention actions across pilots

Interventions / Number of participants affected	Edirne	Jelgava	Leeds	Heerlen	Óbuda	Valencia
Socio-energy audits	Yes	Yes	Yes	Yes	Yes	Yes





Building improvements / or energy modernisation of households	Yes		Yes		Yes	Yes ¹
Energy efficiency training / visits from energy coach / kit	Yes	Yes		Yes	Yes	Yes
Education and Training materials		Yes				
Bill optimization		Yes				Yes
Participants can follow T/H/CO2	Yes	Yes		Yes		Yes
Debt support				Yes		Yes
Health improving actions / referral to life enhancing programmes					Yes	Yes
Community engagement programs				Yes	Yes	Yes
Attitude forming programs					Yes	
Local stakeholders network collaboration				Yes	Yes	Yes
Training professionals on energy poverty				Yes		Yes
Communication campaign / Citizen campaign				Yes		Yes Digital
Collaboration with housing corporations				Yes		
Policy recommendations	Yes	Yes	Yes	Yes	Yes	Yes

The above-mentioned table presents a summary of interventions in: Edirne, Jelgava, Leeds, Heerlen, Óbuda, and Valencia. All cities conducted socio-energy audits, with the number of participants ranging from 1 in Leeds to 145 in Valencia. Building improvements were implemented in Edirne, Leeds and Valencia (in this case, only to some participants), while Óbuda have implemented an energy modernization in the form

¹ In Valencia pilot building improvements were not covered by this project. However, certain enhancements were achieved through collaboration with SOCIAIRE project, though they were not formally incorporated under Wellbased standards.



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of new energy-efficiency appliances of 78 households (please note building improvements were financed by municipal own resources, not by WELLBASED project).

Energy efficiency training, visits from energy coaches, and distribution of kits were common interventions in all cities except Leeds. The number of participants in these programs varied, with Valencia reaching the highest number at 145. Bill optimization was implemented in Jelgava and Valencia, with the latter city optimizing bills for 145 participants.

Four cities (Edirne, Jelgava, Heerlen, and Valencia) enabled participants to follow the temperature, humidity, and CO2 levels registered in their homes. Qualitative interviews revealed that people reacted to the CO2 levels, as highlighted in the WP4 deliverables and evaluation of the intervention. Some participants requested access to the temperature, humidity, and CO2 data after the end of the data collection period. Valencia pilot provided the data to all participants as a token of appreciation for their participation. Overall, the option to monitor such information proved to be useful for the participants.

The fact that people reacted to the CO2 levels and requested ongoing access to the data suggests that monitoring environmental parameters was a meaningful aspect of the intervention for the participants.

Debt support was provided in Heerlen and Valencia, with the latter city reporting five severe cases (see relevant sections of intervention).

Health-improving actions and referrals to life-enhancing programs were implemented in Obuda and Valencia, with 14 and 35 households benefiting, respectively.

Community engagement programs were conducted in Heerlen, Óbuda, and Valencia, with Óbuda having the highest number of participants at 68. Óbuda also reported two events for attitude-forming programs. Local stakeholder network collaboration was evident in Heerlen, Óbuda, and Valencia, with Óbuda hosting three events and Valencia collaborating through the SOCAIRE project amongst others, which also allowed to provide some renovations in seven households in Valencia pilot.

Training of professionals on energy poverty was reported in Heerlen and Valencia, with the latter city training 65 individuals. Communication campaigns and citizen campaigns were conducted in Heerlen and Valencia (digital and through city public advertising).

Heerlen could report as well collaboration with housing corporations.

In terms of the timing of the interventions it varied across pilots, with some extending over longer periods or occurring outside the direct control of the project team e.g. such as home rehabilitations.

Interventions across all pilots were monitored at the individual participant level, including the type, start, and end dates, ensuring detailed tracking and monitoring. As it was mentioned above, the interventions were designed using the social-ecological model, specifically addressing socio-economic and environmental conditions. This included policy-related interventions that were initially incorporated into the urban programs. However, their implementation was postponed in most pilots to allow for integration of research findings and lessons learned. While some pilots have already initiated actions, such as drafting municipal plans and collaborating on energy poverty indicators, the effects of these policy-related interventions are expected to





be long-term and will extend beyond the current data collection phase. Further details on intervention implementation including their timing are provided in subsequent sections of D3.4.

4 Recruitment

As already reported in D3.2. Midterm recruitment report and the Recruitment justification report, the recruitment process for the WELLBASED project faced numerous challenges, yet significant efforts were made to overcome them and achieve meaningful results.

In WELLBASED project, 77% of total recruitment target was achieved (1340 of the originally planned 1750 participants), 67% in the intervention group (589 out of 875 intervention group participants) and 86% in the control group (751 out of 875 control group participants)

We believe that challenges stemmed from several factors. Some cities, like Leeds and Óbuda, faced geographic constraints, limiting recruitment to specific locations. This restriction, combined with cultural and language barriers, reduced the pool of eligible participants. For instance, many potential recruits in Leeds were migrants with demanding work schedules, making participation in the project impossible. While in Óbuda scepticism and mistrust towards government were reported, further complicating recruitment efforts.

Other issues also influenced participant recruitment. Potential participants were affected by a complex mix of factors, such as the perceived time and effort required for participation (long-term period of data collection), uncertainty about their ability to commit, the value they saw in participating for themselves, and their overall interest in the research topic. These factors were compounded by other practical concerns like the timing and method of invitation, as well as trust in the local government.

Other obstacles included low engagement in Jelgava, where residents exhibited limited interest in the study due to competing energy-related programs and economic anxieties, such as inflation and high energy costs.

The project was further impacted by external circumstances beyond the control of the pilot teams, notably the aftermath of the COVID-19 pandemic and the ensuing energy crisis driven by the war in Ukraine. These factors significantly affected participants' willingness to engage in a long-term project, adding to the challenges of recruitment.

However, mitigation actions were taken to address these challenges across all pilots. Understanding the importance of convenience for participants, the project extended the recruitment period by four months and made efforts to simplify procedures, such as shortening questionnaires to ease participation burdens. Incentives, like grocery vouchers, were offered to increase the perceived value of involvement. Additionally, direct community engagement strategies, such as door-to-door visits and community meetings, helped build trust and facilitate participation.





Partners remained committed to the recruitment process and utilized various strategies, including collaboration with local entities (for example Valenica worked closely with non-profit organisation to recruit control group participants), other pilots were leveraging social media, and engaging directly with communities. This persistence resulted in reaching 86% of the control group target, though the intervention group's recruitment remained lower at 67%.



Figure 3 Strategies that were applied during the recruitment period

In conclusion, while the recruitment process encountered significant hurdles, the joint efforts by all involved partners and dedicated work from pilots' teams resulted in data collection viable for project research.

Recruitment process also revealed important lessons for future recruitment efforts. It became clear that recruitment strategies must not only consider logistical and demographic aspects but also address the nuanced factors that influence people's individual decisions to participate. The timing of invitations, clarity in communication and trust-building efforts are critical.

Pilot Cities	Total Participants Recruited	Intervention Group Participants	Control Group Participants	Gender Considerations
Edirne	245	122	123	Balanced (men and women)
Jelgava	157	124	33	Higher female participation
Leeds	200	10	190	Not specified
Heerlen	199	117	82	Not specified

Table 3 Number of recruited participants that provided baseline (T0) samples





Óbuda	112	82	30	Not specified
Valencia	322	145	177	Higher female
				participation

4.1 Gender consideration

In the implementation phase, gender considerations were integrated from the design stage, as reflected in the training webinars for pilots and the inclusion of a gender section in each pilot's implementation plan (D3.1). During the initial months of the implementation phase and the recruiting of the participants for the study, it was noted that there were a higher number of female participants compared to male participants. In terms of data analysis (for more information refer to WP4 deliverables), the dataset contains a sufficient number of men, allowing for moderation analyses.

Data collection efforts aimed to capture gendered experiences of energy poverty. Qualitative interviews ensured diverse representation across gender and age, recognizing the unique challenges and perspectives faced by men and women in different household roles.

Specific measures were adopted, such as allowing children in group meetings to facilitate the participation of mothers and ensuring female staff members were available to conduct health measurements for women in Muslim households. While the study focused on adults aged 18 and older, and children were not included in the formal data collection, some insights into their experiences were gathered through parental testimonies during qualitative interviews. However future research may specifically address the impact of energy poverty on children, recognizing their vulnerability.

Policy recommendations may incorporate gender aspects, depending on the outcomes of ongoing research and the potential underrepresentation of men in the sample and children.

5 Data collection

WELLBASED project relies on data collection and the study design was defined in D4.1 (WP4). This deliverable included a description of the measures in both study groups (intervention and control).

In WELLBASED project data is collected using complementary methodology: self-reported questionnaires on health and wellbeing, household energy expenditure and consumption (where possible and such option exists), health monitoring (e.g., blood pressure measurements), household data from sensors (temperature, humidity, CO2 and in some cases VOC), and qualitative data on the lived experience of the intervention.

One of the main task during the data collection phase is the collection of baseline data and then surveys. Baseline data collection was initiated with careful consideration of the staggered entry of participants into the study, along to the challenges encountered during the recruitment phase. Initially, the recruitment period was planned for 6 months, but later it was extended by an additional 4 months, spanning in total from August 2022 to June 2023. **Having the extended timeframe, participants could join the project at any**





point within this 10-month window. To ensure data consistency, all pilots made significant efforts to ensure that the baseline questionnaire was completed within the first weeks of each participant's recruitment.

Health data collection methods varied across pilot sites, employing a range of approaches. These included self-monitoring by participants, data collection by project team members (such as nurses, research assistants, or physicians), and automated data collection. This flexibility was necessary to accommodate the specific constraints and challenges faced by each pilot, ensuring that health data could be gathered effectively.

Regarding energy consumption, it was monitored primarily through self-reported questionnaires in both the intervention and control groups. Participants are asked to provide detailed information regarding the type of energy consumed (e.g., electricity, gas, heat), the amount consumed, and the associated costs for a specified period—typically a month or half a year. This self-reported data is then standardized by the research team to reflect monthly energy consumption and cost for comparability across households.

Some pilots had a chance to collect data automatically like in Valencia pilot. Valencia pilot implemented a more advanced energy monitoring approach using Pylon Data, which is a monitoring software for energy consumptions (both electricity and gas). 50 participants from intervention group in Valencia were eligible and agreed to create a Pylon Data profile to have such report. In the Annex 15 for Valencia in section 15.3 'Energy consumption' more information on the case is provided. Unfortunately, other pilots were not able to set up this monitoring system.

Finally, the monitoring of the indoor environment in the WELLBASED project focused on T/H/CO2 using simple and easily installed devices. While other parameters, such as particulate matter (PM) could have been included in data collection, along to the additional factors like environmental noise, they were not used in the project due to the fact that Indoor Air Quality is not the project's objectives, and the home sensor measurements serve as supplementary data. The selection of these simple measures was influenced by practical constraints, including budget limitations and the need for easy-to-use devices that could be widely deployed in households across 6 pilot cities. Including more advanced monitoring for PM or other pollutants would have significantly exceeded the project's budget and compromised the simplicity and accessibility of the devices used. Table 4 shows the number of devices deployed in each city and the monitoring process followed in the project regarding the devices' deployment across the pilot cities.

	Edirne	Leeds	Jelgava	OBUDA	Valencia	Heerlen
Number of T/H/CO2 distributed	38	21	118	52	130	141
devices among participants						
The temperature, humidity, and	Yes	Yes	Yes	Yes	Yes	Yes
CO2 devices have already						
begun providing data						
Local integrator supports	Yes	Leeds City	Yes	Yes	Yes	Yes
devices maintenance (T/H/CO2)		Council team				

Table 4 The number of devices deployed in each city and their monitoring process



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and ensures that data flows smoothly		provides support				
T/H/CO2 data is sent to the pilot's SCM server located in Europe	Yes	Yes	Yes	Yes	Yes	Yes
T/H/CO2 data sets were collected and uploaded to dedicated platform for further analysis after the data collection phase is finished	Yes	Yes	Yes	Yes	Yes	Yes

The number of devices deployed does not necessarily reflect the number of participants in the study group. For example, in Edirne, 38 devices have been deployed, while a number of recruited participants is 124. Meaning that devices are deployed in households, and one household may contain multiple participants.

Data from environmental sensors (T/H/CO2) and health measurements have been effectively organized and managed. T/H/CO2 data flows to the Smart City Monitor (Pharos Navigator platform), while health data were collected in the WELLBASED platform. Such unified approach facilitates efficient monitoring and information sharing among WELLBASED partners. T/H/CO2 data were accessible in near real-time to pilots teams as well as to the participants (to their own dashboard), providing immediate household insights, whereas health data will be analysed in the next phase (WP4), as it is not available in real-time.

🗘 Main Menu	Mobile	Events Log	Tools
Wizard Events .	Navigate	Prefere	Help A
Monitor Defau	ult group •	× .	
Object Name			
Temperature in community			
Humidity in community			
CO2 value in community			

Figure 4 Valencia Smart City Monitor Dashboard for pilot team







Figure 5 View of the monitoring temperature, humidity, and CO2 in the household during December 2022 and the first half of January 2023 in one of the pilot cities

The full details regarding the technical details of T/H/CO2 and health measurements for each of the six pilot cities are provided in the appendix of this deliverable. The appendix includes a description of procedures and technical details for households' environmental data collection, health measurements data collection and other relevant information. When applicable, any relevant observations and findings are also provided.

City-level data at the pilot level includes a range of environmental indicators collected from open-source

These indicators comprise Report for "Valencia Meteo" resources. outdoor temperature, outdoor humidity, outdoor precipitation, particulate matter (PM10 and PM2.5), carbon monoxide, nitrogen dioxide (NO2), sulfur dioxide, and dust levels. These data points are crucial for evaluating the broader environmental context, allowing for a comprehensive understanding of outdoor conditions across the pilot sites. This standardized data collection supports consistent analysis and comparability between cities involved in the project. The utilization of this data in subsequent analysis will be further identified during the final assessments on intervention outcomes. Particularly temperature and humidity data are already used in the evaluation.

	Valencia	meteo	
Overview	Descriptors	Indicators	Data Elements
① Current s	status of indicate	ors	
Indicator			
Outdoor ter	mperature indicate	or	
Outdoor humidity inndicator			
Outdoor precipitation indicator			
Outdoor particulate matter, PM10 indicator			
Outdoor particulate matter, PM2.5 indicator			
Outdoor ca	rbon monooxide i	ndicator	
Outdoor nit	Outdoor nitrous dioxide (NO2) indicator		
Outdoor sulphur dioxide indicator			
Outdoor dust indicator			

Figure 6 Dashboard Smart City Monitor (Valencia) for city-level data includes a range of environmental indicators





6 Risks encountered during the implementation actions

The implementation of energy poverty interventions in six pilot cities, as outlined in the WELLBASED project, involved several risks that were identified, materialized, and mitigated through systematic approaches. Key risks included challenges in participant engagement, data collection, and the provision of resources. For example, participants were sometimes reluctant to transfer health measurement data or attend scheduled interventions, which was addressed by sending reminders and offering personal follow-ups. Additionally, issues related to budgetary constraints, such as high inflation rates preventing the installation of smart meters, necessitated adjustments in planned interventions without compromising the study's integrity.

In some instances, participants expressed scepticism toward the devices used for data collection, fearing potential breaches of privacy. To mitigate this, external experts were brought in to explain the devices' functionality transparently.

Engagement strategies, including offering multiple training sessions and community outreach events, were implemented to maintain participant interest and motivation.

The table below provides an overview of the key risks encountered during the implementation of actions across the pilots. The table categorizes the identified risks, their materialization, and the actions taken to mitigate their impact. Each risk reflects the unique challenges of engaging vulnerable populations in such project and the mitigation strategies adopted by the project partners. All pilots took a proactive approach to ensuring the success of the interventions, maintaining participant engagement, and adapting to the challenges. The main risks identified in the implementation of the programmes have been integrated and managed by the overall risk management strategy of the project.

List of Risks	Risk Materialization	Actions Taken
Participants are not	Participants not being at	This issue frequently arises during health
available for health	home when personnel	measurements, as participants often have
measurements	come to their homes for	irregular or late work schedules. To accommodate
	health measurement	this, multiple meetings are scheduled, and, in
		some cases, repeated home visits are required to
		find a suitable time for the measurements.
Participants not	Participants might forget or	In Jelgava reminder SMS was sent on the 24th of
transferring	neglect transferring	each month; second reminder sent by the 28th. If
measurement data	monthly measurement data	no data was entered, participants were contacted
		by phone.
Low participation in	Low attendance during	Each participant was personally addressed,
interventions	scheduled interventions	multiple dates were offered, and transportation
		and snacks were provided

Table 5 Overview of some of the risks encountered during the implementation of actions across the pilots





Lack of finances for	Citizens might not have	Municipalities worked on obtaining additional		
citizens	enough resources to make	financial resources to assist them.		
	home improvements			
Inability to interest	Some citizens showed	Events were organized to motivate residents by		
citizens in	reluctance to make	presenting the benefits of prior improvements		
improvements	suggested improvements	made by others.		
Information already	There was a risk that the	A wide range of energy-saving measures for		
known to	educational materials	households was collected and distributed. In the		
participants	provided would not offer	case of trainings' contents, participants were		
	new information to	asked to select the topics they prefer the most.		
	participants			
Low interest of the	Fewer participants applied	Several strategies were implemented, including		
population to	for the study than	continuous motivation and communication.		
participate	anticipated			
Unplugging of air	Participants unplugged air	Regular home visits by municipal personnel were		
quality sensors by	quality sensors	conducted to check device conditions.		
participants				
Participants tired of Participants wanted to stop		Direct conversations were held with participants to		
participating,	their involvement due to	propose them to continue, and convenient		
wanting to withdraw	fatigue	methods of submitting data were offered.		
Problems with data	Sensors had issues	Regular checks were performed, and device		
transfer from	transferring data to the	providers and platform managers were contacted		
sensors	Smart City Monitor platform	to resolve any data transfer issues.		
Poor attendance at	Not all participants	Sessions were scheduled at convenient times and		
training sessions	attended scheduled	locations for participants, and both online and in-		
Dorticipanto	Derticipants feared that air	External experts explained the functionality of the		
Participants	quality concore might	external experts explained the functionality of the		
collecting data	collect consitive personal	narticipants		
conecting data	data			
Particinants not	Participants affected by	Continuous reminders were issued, and the lack		
attending	debt did not participate in	of participation was addressed by incorporating		
counselling	counselling sessions	other activities to spark an interest		
	despite needing assistance	other activities to spark an interest.		
High inflation	High inflation rates made it	The installation of smart meters was abandoned		
newonting omost				
preventing smart	financially unviable to	due to budget constraints; the overall research		
meter installation in	financially unviable to procure smart meters as	due to budget constraints; the overall research study was not significantly impacted by this		





The detailed descriptions provided in the intervention tables for each pilot city in the relevant sections offer further insights into how pilot teams managed participant engagement, data collection, resource limitations, and other project-specific obstacles.

7 Snapshot overview on pilots

This section provides a brief snapshot of each pilot city involved in the WELLBASED project. It offers an overview of the recruitment processes, key interventions, and initial challenges encountered during the project. The snapshot serves as a summary, presenting a high-level view of the pilot activities. Detailed descriptions, intervention actions tables, and comprehensive accounts of interventions and outcomes are provided in later sections of the document. These detailed sections include tables, narratives, and data supporting the interventions carried out in each pilot, offering a thorough understanding of the project's scope and impact.

Each snapshot is accompanied by an image extract from the Wellbased Urban Programme (WUP) of the respective pilot, which was previously developed in D2.3 from WP2.

7.1 Edirne (Turkey) a snapshot





The recruitment process in the Edirne pilot was driven by the trust in local facilitators and tangible benefits, such as home improvements and health check-ups for the intervention group. There were some concerns about sensor installations from the participants (T/H/CO2) and they were addressed through transparent communication. The Edirne's approach to recruitment process ensured balanced gender participation by





recruiting entire households, with word-of-mouth communication proving effective in increasing engagement.

Regarding implementation actions, the Edirne pilot within the WELLBASED project focused on several key actions aimed at addressing energy inefficiency and improving living conditions of the intervention group. The pilot conducted socio-energy audits for 124 participants between November and December 2022, providing comprehensive assessments of energy use and home conditions. Additionally, training on energy efficiency and air quality improvement was provided to 120 participants between November 2023 and January 2024, emphasizing practical steps to enhance household energy practices.

A critical component of the interventions in Edirne pilot was to provide building improvements, which included the installation of heating systems in 38 households and insulation improvements in some homes. Those were conducted between September 2023 and March 2024, which led to indoor comfort enhancing, particularly during the winter months. The installation of temperature, humidity, and CO2 sensors in 38 households allowed to collect relevant data about air quality and environmental data (T/H/CO2).

The installation of heating systems in Edirne has improved households living conditions by expanding the usable living space during the winter months. Prior to the intervention, many homes relied on single room heating with traditional stoves, confining families to limited areas. The new heating systems allowed for better heat distribution, enhancing comfort of the household residents. This intervention not only addressed energy poverty along to energy inefficiency but also contributed to an improved quality of life by allowing households to utilize more of their living spaces during cold weather.

Policy recommendations aimed at reducing energy poverty were prepared through stakeholder workshops and were performed in September 2024.

Edirne pilot also has highlighted several lessons learned during the recruitment and implementation phases. Trust-building measures, particularly through grassroots facilitators and transparent communication, played a critical role in participants' engagement in Edirne pilot until the very end of the implementation actions. Challenges related to concerns over privacy and the economic impact of inflation were mitigated through consistent dialogue and flexibility in intervention timelines by Edirne Municipality and relevant partners from the pilot.

Detailed information regarding the intervention actions and the associated data collection processes in Edirne can be found in the relevant sections and annexes of this document.





7.2 Jelgava (Latvia) a snapshot



Figure 8 Extract from the Jelgava WUP (D2.3)

The recruitment process in Jelgava heavily relied on public engagement strategies, including the use of social media, public events, newspaper publications and direct communication in community spaces. Despite these efforts, participant numbers were lower than initially anticipated also with some gender imbalance. The pilot also planned close collaboration with social services; however, by the time of engagement, these services were fully occupied with supporting refugees from the Ukraine (2022 year).

Participants expressed scepticism regarding the energy audit process, and scheduling visits proved to be challenging. To address these concerns, the Jelgava pilot team used continuous communication and personalized engagement strategies. Furthermore, the socio-economic context in Latvia, including limited financial incentives, posed difficulties in fully motivating participants to engage with the interventions (comparing to Edirne, where building improvements were part of the interventions).

The Jelgava pilot aimed to address energy poverty by implementing multiple intervention actions, including energy audits, delivery of energy efficiency kits, and educational/training materials. Energy audits were conducted in 115 households (123 participants are affected) between March and November 2023. These audits assessed heating types, electricity usage, and overall energy efficiency habits. Alongside the audits, participants received energy efficiency kits that included practical items such as LED bulbs and weatherproofing materials, designed to mitigate energy waste.

Educational materials and energy efficiency advice were distributed to 115 households over the same period, with specific guidance including energy bills optimization provided to 52 participants in June and September 2023 on optimizing energy bills. Additionally, air quality monitoring devices tracking temperature,



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humidity, and CO2 levels were installed in 118 homes from December 2022 through August 2024, allowing participants to observe indoor environmental conditions in real time.

The Jelgava pilot demonstrated the importance of localized, direct communication in recruiting participants and highlighted the need for flexible, responsive approaches in delivering energy efficiency interventions. The reliance on existing community networks, as well as the provision of tangible benefits such as energy kits, were crucial to maintaining participant engagement. However, the pilot also underscored the challenges of achieving significant behaviour change in populations facing economic constraints.

Detailed information regarding the intervention actions and the associated data collection processes in Jelgava can be found in the relevant sections and annexes of this document.



7.3 Leeds (UK) a snapshot

Figure 9 Extract from the Leeds WUP (D3.2)

The Leeds pilot focused on building improvements, including insulation and energy efficiency upgrades, which were initiated in collaboration with third-party providers (Leeds City Council department). These interventions aimed to improve household energy performance and reduce energy costs.

The recruitment process was challenging in Leeds due to the nature of the interventions and the socioeconomic context. Despite these obstacles, a total of 30 intervention group participants were recruited, with 21 households actively monitoring their environmental data.

The reliance on external partners for the physical interventions highlighted the need for better coordination and streamlined processes. Nonetheless, the pilot contributed valuable insights into the intersection of community involvement, data-driven monitoring, and practical energy efficiency improvements.





Detailed information regarding the intervention actions and the associated data collection processes in Leeds can be found in the relevant sections and annexes of this document.

7.4 Heerlen (Netherlands) a snapshot



Figure 10 Extract from the Heerlen WUP (D3.2)

The Heerlen pilot focused on a multi-faceted approach to combating energy poverty, emphasizing energy efficiency training, debt support, and socio-energy audits performed by the municipality. These interventions aimed to improve energy use behaviours, support households in managing energy debt, and provide handson guidance through audits and energy kits, with additional efforts in training professionals to detect and address energy poverty issues. A total of 141 participants actively engaged in the pilot.

One notable feature of the Heerlen pilot was its emphasis on community outreach and stakeholder collaboration, including the organization of open talks and community meetings. These initiatives sought to increase public awareness of energy poverty and foster collaboration between local organizations, housing corporations, and policymakers. Additionally, the pilot engaged households in energy debt support programs, offering targeted assistance to those struggling with unpaid bills, thereby alleviating immediate financial pressures related to energy consumption.

In terms of data collection, T/H/CO2 sensors were installed in 141 households, providing near real-time environmental data that allowed participants to monitor air quality and indoor conditions. Heerlen was the only pilot who collected health measurements automatically through the additional wearables and the local company service.





The pilot's recruitment process was challenged by the energy crisis that began in October 2022. Nevertheless, Heerlen successfully recruited participants and collaborated closely with the third parties to deliver practical energy-saving interventions.

Overall, the Heerlen pilot demonstrated the importance of cross-sector collaboration and the integration of social support with technical interventions.

Detailed information regarding the intervention actions and the associated data collection processes in Heerlen can be found in the relevant sections and annexes of this document.

7.5 Óbuda (Hungary) a snapshot



Figure 11 Extract from the OBUDA WUP (D3.2)

The Óbuda pilot, located in the Békásmegyer district of Budapest, implemented a range of interventions aimed at improving energy efficiency and addressing energy poverty. The pilot conducted energy audits and provided arrears management support to households facing challenges with energy bills. Additionally, the intervention included energy efficiency training and household management education, with the goal of equipping participants with the skills and knowledge needed to reduce energy consumption and manage their household finances more effectively.

A notable feature of the Óbuda pilot was its focus on community-building programs, which aimed to foster a sense of collective action and collaboration among residents. The pilot organized attitude-forming programs, community events, and stakeholder engagement activities that sought to raise awareness about energy poverty and promote energy-saving behaviours at the household level.





Physical interventions were also a key component of the pilot, with energy modernization projects implemented in households by providing new household appliances and equipment to the participants and replacement of broken, old or inefficient household appliances.

The Óbuda pilot demonstrated the value of integrating technical upgrades with community engagement and educational initiatives to address energy poverty. The pilot also highlighted the importance of local partnerships and community-driven initiatives in ensuring the success and sustainability of energy poverty interventions.

As for thank you gifts, they are planning on planting trees together with participants in the beginning of next year 2025.

Detailed information regarding the intervention actions and the associated data collection processes in OBUDA can be found in the relevant sections and annexes of this document.

7.6 Valencia (Spain) a snapshot Incidence of Energy Poverty be en 9,6% and 16,8% ion: 701 413 (20 Aged population: 26,2% pop to Fillever Immigration rate (not from EU): 10,6% Unemployment rate: 15,1% Inability to keep home adequately warm (2018) 91% Energy poverty and housing Comunitat Valenciana region has higher EF rest of the country a registered 23% households in EP in 2016 16.2 % 14,2 % EDUCATION 14,6 % 60% of the buildings in V 13,0 % HEALTH EQUI ion, EP is above the city cts of WB inte Spain Overview of the WUP Valencia, Spain LAYER 1 LAYER 2 LAYER 3 LAYER 4 LAYER 0 Due to the sociodemographic characteristics of the target population and/or the WUP focus, a crocial impact is expected on: HEALTHY LIFESTYLES AND HABITS ASSOCIATIVE UNEMPLOYMENT ENVIRONMENTAL AND LEVEL WEATHER CONDITIONS a special impact is expected on: KEY COMMUNITY ACTORS AND PROFESSIONALS CITY INFRASTRUCTURE FINANCIAL SITUATION, INCLUDING DEBTS ENERGY EFFICIENCY HABITS AGED POPULATION (GREEN ZONES, BIKELANES...) UNWANTED LONELINESS/ SOCIAL ISOLATION STRUCTURAL HOUSING LARGE FAMILIES MENTAL HEALTH AND SUPPORTIVE POLICIES AGAINST EP CONDITIONS (INSULATION...) ATTITUDE GENERAL PUBLIC SINGLE ENERGY EFFICIENCY MEASURES AT HOME FAMILIES WITH NO CHILDREN FORMAL EDUCATION ENERGY PRICES



The Valencia pilot implemented a comprehensive program to address energy poverty, focusing on both practical interventions and community-based initiatives. Key actions included socio-energy audits, energy debt support, and bill optimization services. These interventions were aimed at reducing energy consumption and alleviating financial burdens on vulnerable households.

A significant part of the pilot was the Citizen School of Right to Energy, which organized regular community meetings and training sessions for professionals to improve the detection and management of energy poverty. The Citizen School was also involved in organizing a community campaign on the right to energy,





raising awareness and fostering a collective approach to tackling energy-related issues. This initiative helped to build local capacity and empowered citizens by providing them with the knowledge and tools necessary to address energy poverty on both a personal and community level.

Additionally, energy efficiency kits were distributed to participants to encourage immediate improvements in household energy use. The installation of T/H/CO2 sensors in 130 homes further enhanced participants' ability to monitor their indoor environmental conditions, supporting data-driven decision-making about energy use.

Recruitment efforts in Valencia were effective due to strong community engagement and the presence of local facilitators, which helped ensure active participation.

The Valencia pilot demonstrated the value of integrating policy advocacy, community education, and practical interventions to address energy poverty. Its holistic approach, combining direct assistance with capacity-building initiatives, not only addressed immediate needs but also contributed to the long-term empowerment of households and professionals alike. The pilot's success in organizing both local stakeholders and community members into active participants underscored the importance of a collective and rights-based framework in addressing energy poverty challenges.

The pilot opted to provide participants with printed charts detailing T/H/CO2 measurements collected during the data collection phase, to facilitate a comprehensive understanding of indoor environmental conditions.

Detailed information regarding the intervention actions and the associated data collection processes in Valencia can be found in the relevant sections and annexes of this document.





8 Comprehensive overview of actions in each pilot: interventions, recruitment reflections, lessons learned, success stories

This section offers a detailed examination of the interventions implemented by each of the six pilot cities involved in the WELLBASED project. The interventions were designed and implemented to address energy poverty using a tailored approach in each city. The section highlights the various actions taken, ranging from socio-energy audits to community engagement, building improvements, and energy efficiency training. The pilots applied a multi-layered strategy based on the social-ecological model to influence energy-saving behaviours and improve the living conditions of vulnerable populations.

8.1 Edirne



The main phenomenon that brings energy poverty to the agenda in Türkiye is energy poverty, which intensified in the aftermath of the 2008 crisis in the face of rising prices and falling incomes (Erdoğdu, 2022). The growing importance of energy poverty has led to a widespread debate on measuring energy poverty on the agenda of academics and policymakers (Recaldea et al. 2019).

The following table provides a summary of the intervention actions implemented in the Edirne pilot, including the number of participants in actions performed, the timing of interventions providing an overview of the pilot's efforts to address energy poverty at the household level during WELLBASED project.




Intervention actions:	Number of participants affected by the action	Timing of interventions (start from the first participant and the end of intervention with the last participant that receives it)
Socio-energy audits	124 participants	November 2022 – December 2022 (M21-M22)
Training on energy efficiency and air quality improvement in participants' homes	120 participants	November 2023 – January 2024 (M33-M35)
Building Improvements	 Heating system replacement: 124 participants Home insulation: 24 participants 	 September 2023 – October 2023 (M31-M32) - Heating system replacement October 2023 – March 2024 (M32- M38) – Home insulation
Policy recommendations to the governance on energy poverty	25 participants	August 2024 – September 2024 (M42- M43)

8.1.1 **Reflections on the recruitment process**

How different factors influenced the recruitment process

The most significant factors influencing participation in Edirne pilot were the trust in the grassroots organizations and role of Edirne Municipality that invited potential participants. Additionally, the prospect of home repairs, the installation of a new heating system, and monthly health check-ups were key incentives for the participants' recruitment. Beyond these, word-of-mouth communication within neighbourhoods was an effective method for spreading information about recruitment and the project itself.

Another critical element was the role of Roma facilitators. The trust and relationships they have established, both prior to the project and during its implementation actions, played an essential role in securing participation and ensuring its continuity. Furthermore, the responsiveness of the municipality's facilitators to participants' questions and concerns significantly bolstered commitment and engagement.

Participants were clearly informed of what would be expected of them, though it was observed that at the start, they had little anticipation regarding their own engagement efforts. To ease their participation and reduce burden, data collection was carefully timed to align with their daily routines, ensuring minimal disruption to their everyday lives. This approach effectively minimized potential barriers to participation and positively contributed to sustained engagement throughout the project.





One major challenge regarding engagement and data sharing revolved around the air quality devices. Some participants were concerned that these devices could be used to eavesdrop or monitor conversations in their homes. However, the facilitators' transparent communication and clear explanations of how these devices functioned were instrumental in addressing these concerns and maintaining ongoing engagement.

Overall, building trust, ensuring consistent communication, and adapting to participants' routines were pivotal strategies for successful recruitment and sustained participation.

Any differences in how the Intervention and Control Groups were approached Intervention Group Control Group

The same approach was used for both groups. Both intervention and control groups were approached by facilitators from grassroots organizations who are familiar with the community. This familiarity and trust that had been built over the years, were the most significant advantages in recruiting participants. A lottery was held in the presence of a notary public for participation in the project and the intervention and control group participants were determined as a result of the lottery.

Gender considera	tion
Recruitment	In the recruitment process, a strong gender-sensitive approach was adopted by focusing on the recruitment of entire households. This strategy inherently maintained a balanced gender representation within the participant groups, as it naturally aligned with the general population dynamics within families. Additionally, particular attention was given to ensuring the participation of elderly women and women responsible for their household's livelihood. Word-of-mouth communication specifically targeted households with these characteristics to encourage their involvement in the project.
Interventions	The interventions, including possible building improvements, training sessions, and the installation of heating systems, were designed to benefit all members of the household. To ensure comprehensive analysis, data collection was structured to capture the gendered impacts of these interventions. As a result, despite the random assignment, the gender-responsive recruitment approach ensured that both the intervention and control groups reflected a diverse and balanced representation of gender roles. This alignment allows the study to explore the varying impacts within different gender contexts, making the findings more relevant and equitable across both groups.
Analysis (if applicable)	The data collected enables an environment where gendered impacts of energy poverty and the interventions can be captured. Surveys were conducted with all adult individuals within intervention and control households, ensuring that data was





collected from a broad range of perspectives. This approach captures variations in how men and women experience energy poverty and benefit from interventions. Indepth interviews were also conducted with select members of the intervention group to gain qualitative insights. To ensure gender responsiveness and diversity in the qualitative analysis, interviews were conducted with individuals from various demographic groups and different employment and educational statuses.

The qualitative interviews intentionally included elderly men, elderly women, young women, young men, and adult men and women. This diverse sample allows for a comprehensive exploration of gendered impacts, ensuring that the voices of those who may be more vulnerable or have different responsibilities within households are represented. The analysis is structured to understand how factors like caregiving roles, income generation, energy usage patterns, impact of interventions differ across genders and age groups.

By taking these factors into account, the study is positioned to provide a nuanced understanding of how interventions affect different members of households based on their gender. This approach ensures that the outcomes reflect the real-life dynamics within households, making the findings more relevant and equitable across different demographic groups.

Other relevant N/A considerations





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8.1.2 Interventions in pilot



8.1.3 Action 1. Socio-energy audits

ACTION 1. Socio-energy audits

Status of overall action

I Finished

□ Other

Description of what and how have been performed for Socio-energy audits

Energy audits were carried out in the homes of the primary and substitute participants selected for the intervention group. Technical teams discussed where the heating systems should be installed and what kind of heating system it should be. Households were informed about the project and the work to be done within the scope of the relevant action was roughly explained.

Socio-energy audits and features of dwellings	The audit was conducted for the households of the primary and substitute participants selected for the Intervention Group. A total of 53 households were socio-energy audited. Houses are generally single storey and detached. Some households have only one room.
Socio-energy audits and household behaviour	Before the audit, relevant municipal staff were assigned, and households were informed before the home visits. Each household let for the staff to conduct energy audits in their homes.





Socio-energy audits and what advice were given to the participants	When the participants were available, visits were made to their homes and the benefits of the new heating systems to be installed were explained to the households.
Socio-energy audits and what advice were given to the participants with the note what would be within the household's control, responsibility and budget to do.	Information was given about the working principles of the heating system.
Socio-energy audits and any other relevant details e.g. methods, intervention area, challenges, replication tips, and so on that you consider important.	
Dates of the action	
November 2022-December 2022 (M21-M22)	
Stakeholders involved during the implementation	n of the action (Implementation)
Edirne Municipality, Households of Intervention Grou	qu
Budget and resources	
Energy audit was carried out by municipal personne	I. No budget needed in the project
Risks that took place and what mitigation measured	res were taken, other relevant actions:
List of risks that have taken place	Risk materialization and what have been done
Risk 1. Participants do not understand the technical	The simple language used. Questions asked, and
advice	feedback received to check that the advice has been understood.
Risk 2. Failure to recruit participants in a way that	A communication plan was developed considering
interferes with goal attainment	the characteristics (literacy rates, habits, etc.) of the potential participants in the pilot. Accordingly, Pick 2 did not materialize
Pick 3. Difficultion in using the control group	Risk 2 did hot materialize.
Risk 3. Difficulties in using the control group	and Control Groups in the presence of a notary public. Using a notary public for randomization ensured transparency in the assignment to the control group and enhanced the sense of fair results. In case of dropouts from the control group in the beginning of the study, substitutes surveyed.
Risk 4. There may be problems or delays in the	Periodic internal controls are made during the
preparation of planned activities in one or more	application for possible problems and/or
pilot regions	deviations. The escalation of the issues indicates
	that the project made a mistake in implementing the
	planned interventions and assessments in the selected region.

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Risk 5. Changes in research pathways related to COVID-19, including subject recruitment	In cases where it is not population physically a will be revised to the foreseen physical actionline or over the phor according to the new site	possible to reach the target nd mobility, the work plan relevant situation, and the vities will be carried out ne. Loss scales developed tuation and new rules.
Key Performance Indicators		
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY
	RESULT	RESULTS
Number of socio-energy audits conducted	80%	100%
Lessons learned and any replication tips for similar projects		

Determination of the Control and Intervention Group before a notary public provided an important convenience in the field. The distribution of the houses as a result of the lottery with the participation of the public increased the trust in the municipality and the project. In this context, socio-energy audits were easily conducted in the houses.

8.1.4 Action 2. Training on energy efficiency and air quality improvement in participants' homes

ACTION 2. Training on energy efficiency and air quality improvement in participants' homes		
Status of overall action		
⊠ Finished		
□ Other		
Description of what and how have been performed for Training		
Training on energy efficiency and air quality improvement was organized for the Intervention Group		
participants at the Edirne Municipality Atatürk Cultural Center.		
Dates of the action		
November 2023-January 2024 (M33-M35)		
Stakeholders involved during the implementation of the action (Implementation)		
EDM, DEM & Roma Youth Association		
Budget and resources		
€600 for personnel cost (This fee for 6 personnel was not covered by the project)		
Risks that took place and what mitigation measures were taken, other relevant actions:		
List of risks that have taken place	Risk materialization and what have been done	
Risk 1. Inability to find a suitable date for training in	Training was organized on the appropriate date.	
the places belonging to the municipality		
Risk 2. Lack of understanding of the training by the	In order to facilitate understanding, presentations	
participants.	were made using examples.	





Key Performance Indicators		
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY
	RESULT	RESULTS
Number of trainings on energy efficiency and air quality	2	2
Total number of attendees	Min. 100	100
Providing preliminary information to the participants about the project and training	Min. 1	2
Lessons learned and any replication tips for similar projects		
In order for the participants to come to the place where the seminar will be held, the benefits must be explained to them well.		

8.1.5 Action 3. Building Improvement

ACTION 2. Building Improvement		
Status of overall action		
⊠ Finished		
□ Other		
Dates of the action	 September 2023 – October 2023 (Heating system replacement) October 2023 – March 2024 (Home insulation) 	
Place where the action takes place		
Participants' home		
□ Other (please, specify):		
Describe physical interventions		
Home improvements were planned for households in the Intervention Group that underwent socio-energy audits. Heating systems were purchased for a total of 39 houses.		
Are physical interventions accompanied by training and advice about how best to use the new facilities?		
Heating systems were installed in each house in the intervention group in Edirne. During the installation, the engineers and technicians from the Edirne municipality, accompanied by Roma facilitators, gave training to study participants on how to use the new system. The households were followed-up by these facilitators on the proper use of the heating system on regular basis, with assistance and advice if required. In case of problems, the participants were able to access the facilitators effectively. These facilitators acted as a bridge between the participants and the technical team in solving the problems. Stakeholders involved during the implementation of the action (Implementation)		
EDM, supplier & volunteers		
Period covered of the implementation	M31-M32 (Heating system replacement)	





	 M32-M38 (Home insulation) 	
Budget and resources		
• Heating system replacement: €41,563 (for mat	erials) & €6,668 (for personnel cost)	
• Home insulation: €13,000 (for materials & pers	onnel cost)	
Risks that took place and what mitigation meas	ures were taken, other relevant actions:	
List of risks that have taken place	Risk materialization and what have been done	
Participants find the repairs insufficient	Participants witnessed the process of energy audits, the drafting of the renovation plan and the renovations themselves. At each step, technical information was provided on why these renovations were carried out the way they were and their benefits. The transparency of the process and the constant informational involvement of the	
	dissatisfaction.	
Key Performance Indicators	participants reduced the possibility of dissatisfaction.	
Key Performance Indicators KPI DESCRIPTION	participants reduced the possibility of dissatisfaction.	
Key Performance Indicators KPI DESCRIPTION Number heating system for improved buildings	participants reduced the possibility of dissatisfaction.	
Key Performance Indicators KPI DESCRIPTION Number heating system for improved buildings Regular informal meetings	participants reduced the possibility of dissatisfaction.	
Key Performance Indicators KPI DESCRIPTION Number heating system for improved buildings Regular informal meetings Number of participants affected by action	participants reduced the possibility of dissatisfaction. IMPLEMENTATION KEY RESULT RESULTS 33 (~%80) 38 Min. 4 4 125 124	
Key Performance Indicators KPI DESCRIPTION Number heating system for improved buildings Regular informal meetings Number of participants affected by action Lessons learned and any replication tips for simplication	participants reduced the possibility of dissatisfaction. IMPLEMENTATION KEY IMPLEMENTATION KEY RESULT RESULTS 33 33 (~%80) 38 Min. 4 4 125 124	

eligible before visiting their homes.

8.1.6 Action 4. Participants could follow the T/H/CO2

ACTION 3 Participants could follow the T/H/CO2		
Describe intervention		
Intervention Group homes were fitted with air quality sensors measuring temperature, humidity, VOC and CO2.		
Dates of the action	December 2022-January 2023	
Provide information how participants could follow T/H/CO2 measurements		
LED display of device		
☑ Dashboard of Smart City Monitor		
□ Information provided by pilot's team, specify how:		
☑ Dashboard of local provider, specify how:		
□ Other ways, specify which ways:		





Stakeholders involved during the implementation of the action (Implementation)		
EDM, DEM, local integrator & households		
Period covered of the implementation	M22-M23	
Risks that took place and what mitigation measures were taken, other relevant actions:		
List of risks that have taken place Risk materialization and what have been done		
Participants unplugging the devices Municipality personnel visited the houses at regular		
	intervals to check the condition of the devices.	
Key Performance Indicators		
KPI DESCRIPTION IMPLEMENTATION KEY RESULTS		
Number of devices installed 38		
Lessons learned and any replication tips for similar projects		

Regular contact is needed to ensure that the local integrator completes the installation on time. It is also important to verify the suitability of the houses for installation through the relevant municipal staff. It is important to make occasional visits to the households, with their permission, so that data is provided regularly.

8.1.7 Action 4. Policy recommendations to the

governance on energy poverty

	• •
ACTION 4.	
Status of overall action	
⊠ Finished	
□ Other	
Discussions are being held with relevant stakeho energy poverty.	olders to develop policy recommendations to reduce
Dates of the action	August 2024-September 2024
Place where the action takes place	
Participants' home	
\Box Health Centre (please, specify)	
□ Municipality premises	
Other (please, specify): Online meeting	
Describe intervention	
It is important to include relevant stakeholders in the process for policy recommendations. In this context, it is expected that organizing a workshop with the participation of academics and associations related to the subject, in addition to the Turkish partners of the WELLBASED project, will increase the applicability of policies at the national level.	
Stakeholders involved during the implementati	on of the action (Implementation)





EDM, ZDA, DEM, NGOs & academicians		
Period covered of the implementation	M42-M43	
Budget and resources		
No budget needed in the project. Since the worksho	op will be held online, no e	extra budget is needed.
Risks that took place and what mitigation measures were taken, other relevant actions:		
List of risks that have taken place	Risk materialization a	nd what have been done
Failure to propose action	The process will invo especially the participal in the field. Involvem increase applicability of the risk of failure when The senior energy politi team will guide the p consortium partners will	olve all interested parties, ints themselves and experts nent of these parties will of the proposal and reduce implementing policy. icy specialist in the project process. Cooperation with I also mitigate this risk.
Key Performance Indicators	· · · · ·	Ŭ
KPI DESCRIPTION	PLANNED KEY RESULT	IMPLEMENTATION KEY RESULTS
Organizing internal meetings for policy proposals on energy poverty	Min. 4	4
Lessons learned and any replication tips for sim	ilar projects	

8.1.8 Lessons learned during pilots preparation and implementation actions from Edirne pilot perspective

Lessons learned	
Main challenges faced during the planning, preparation phase and implementation phase	At times, it was difficult to coordinate work in implementation actions, data collection (health measurements and T/H/CO2) altogether dealing with the vulnerable population (Roma community), but the Edirne Municipality was very responsive to the issues and the site's ongoing processes. The municipality's solution-oriented approach accelerated the WP3 process and actions.
Difficulties in stakeholder engagement, resource allocation	A lot of meetings were held to involve participants, and the process was closely monitored by relevant stakeholders. The allocation of municipal resources to aid the earthquake-stricken area following the Kahramanmaraş earthquake in February 2023 hindered the insulation efforts for the building improvements. A number of houses





	remained uninsulated due to part of municipality resources were used
	for ald to the earthquake area.
Data collection	Challenges Encountered: (1) A significant challenge during the data collection involved participants' concerns regarding the air quality devices installed in their homes. Some participants were concerned that these devices might be used to eavesdrop or monitor their private conversations. This suspicion was particularly challenging, as it created trust issues and potential disengagement from the study.
	(2) One of the key challenges during the data collection phase was that study participants were unable to enter their survey data into the system themselves. This issue was primarily due to low literacy levels among the participants, which made it difficult for them to understand and complete the surveys independently.
	Strategies to Overcome Challenges: (1) To address these concerns regarding detectors, we implemented a strategy cantered on clear, transparent, and continuous communication. Facilitators provided detailed explanations of how the detectors functioned, emphasizing their sole purpose of measuring air quality. Additionally, regular updates and reassurances helped build trust and reduce the participants' doubts. This open dialogue proved essential in maintaining participant engagement and minimizing resistance to the data collection process.
	2) Roma facilitators played a crucial role in collecting data manually through paper surveys to address the challenge regarding survey completion. They visited each household individually, explaining the questions to participants and recording their responses. This personalized approach not only ensured accurate data collection but also enhanced participants' understanding and engagement with the process. The collected data was later entered into the project's database by the project team.
Obstacles encountered during the actual implementation of interventions	<u>Challenges Encountered</u> : One of the main challenges during the implementation phase was related to the budget constraints caused by Turkey's high inflation and the aftermath of the Kahramanmaraş earthquake. These factors significantly impacted the municipality's ability to provide home improvements for all targeted households. The rapid increase in





	costs and the shift in resource allocation due to the earthquake created a situation where it was impossible to deliver the planned improvements across all households. <u>Strategies to Overcome Challenges:</u> To mitigate this issue, we sought alternative funding sources and managed to secure contributions from individual donors to cover
	home improvements for a few households. While this provided temporary relief, it emphasized the importance of not relying on external sources for significant financial commitments that are outside the original project budget.
Key takeaways, and actionable recommendations for future projects based on the lessons learned	<u>Key Takeaways Home Improvements</u> The key lesson learned is the importance of being prepared for extraordinary events, such as natural disasters and severe economic instability, which can drastically affect project resources and timelines. Additionally, it highlighted the need to avoid making commitments that depend on uncertain external funding, especially for high-cost interventions. Planning for contingencies and building flexibility into the budget are crucial for future projects.
	Key Takeaways Regarding Air Quality Devices The key takeaway from the experience regarding air quality devices is the critical role of transparency and proactive communication in managing participant concerns, especially in sensitive areas like data privacy. Ensuring that participants fully understand the purpose and functionality of any monitoring equipment is crucial. Establishing trust through ongoing, open communication is fundamental for fostering long-term engagement in similar projects.
	Key Takeaways Regarding Surveys The experience regarding surveys highlighted the importance of adapting data collection methods to the specific needs and abilities of participants. In contexts where literacy levels are low, relying on facilitators who can directly engage with participants is essential for obtaining reliable data. It also emphasized the need for flexibility in the data collection process, allowing for adjustments based on the unique characteristics of the study population
Otter advice on ensuring long- term benefits of the	It is important to involve relevant stakeholders when implementing actions.



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8.1.9 Success story

The installation of heating systems in the intervention group homes resulted in several positive effects, the most significant of which was the overall improvement in household heating. Prior to the intervention, many households relied solely on traditional stoves, which could only heat a single area within the home. As a result, families were confined to limited living spaces during the winter months.

The installation of a central heating system allowed for better heat distribution throughout the entire home. As more rooms became comfortably warm, families were able to utilize a larger portion of their living space, significantly enhancing their quality of life during the colder months. The expanded use of living spaces not only improved day-to-day comfort but also allowed for more diverse activities within the home, fostering a greater sense of well-being among household members.

This intervention was particularly effective because it addressed a fundamental need—adequate heating that directly impacted daily living conditions. By expanding the usable living areas during winter, the intervention provided lasting benefits that extended beyond the initial installation, contributing to an overall improvement in household living standards.

8.2 Jelgava (Latvia)

The following table provides a summary of the intervention actions implemented in the Jelgava pilot, including the number of participants in actions performed, the timing of interventions providing an overview of the pilot's efforts to address energy poverty at the household level during WELLBASED project.

Intervention actions:	Number of actions performed	Timing of interventions (start from the first participant and the end of intervention with the last participant that receives it)
Energy audit at home	115	March 2023 – November 2023
Delivery of energy efficiency kit	115	March 2023 – November 2023
Delivery educational/training materials	115	March 2023 – November 2023
Energy efficiency advice, including energy bills optimization	52	June 2023 and September 2023





Access to home sensor	118	December 2022- August 2024
data (temperature, CO2,		
humidity)		

8.2.1 **Reflections on the recruitment process**

How different factors influenced the recruitment process

Potential participants were encouraged by the fact that the project is represented by a team from the municipality. On several occasions, potential participants were addressed at public events, where direct communication is important in order to create credibility and interest citizens. Potential participants were able to discuss the ambiguous issues in person and make sure they were eligible for membership. We, as the project team, encouraged and aroused interest by telling about the benefits in direct contact. The project's information materials were placed in various public places, such as libraries, universities, municipal office, social care centre and advertising campaign in public transport, where 16 advertising posters were placed. Social media (Facebook, seen by 20% of Jelgava's inhabitants) and the several publications in the local newspaper (received by 26.000 people, e.g. 50% of the city). - Leaflets dropped at homes of the target population (3000 leaflets handed out in September 2022.). - The study team joined a meeting with local NGOs to inform their target group about the study. - Participation in city level events and spreading information about the possibility to participate. Boxes to collect signed informed consent forms were located at the same public locations to make it easy to enroll. Citizens were also provided with the opportunity to apply for the project electronically.

Any differences in how the Intervention and Control Groups were approached		
Intervention Group	Control Group	
Regular communication with the project team (transfer of health measurements every month)	Little involvement required (once every six months to answer to questionnaires)	
additional participation of some participants (22) in qualitative interviews		
Participants were able to monitor the air quality in their homes		
Were invited to participate in various activities		
Motivating gifts for each interview in both groups (blankets, thermoses, weather stations)		
At the time of recruitment, the participant could choose which group they wanted to belong to.		

Gender consideration





Recruitment	According to Central Statistical Bureau data gender structure of Jelgava population consists of 54% (30 085) women and 46% (25251) men and the structure have not significantly changed during the last 10 years. During the application process, both men and women were approached by Equal Rights for all, although more women applied to participate (125 women and 43 men)
Interventions	Women were more actively involved in intervention activities.
Analysis (if applicable)	-
Other relevant considerations	

8.2.2 Interventions in pilot



8.2.3 Action 1. Socio-energy audits







The intervention was carried out by an energy audit expert (trained in the POWERPOOR project) who conducted energy assessments at the participants' homes. The energy assessment was carried out according to the methodology developed by the HORIZON 2020 project POWERPOOR. (type of heating, electricity usage habits, energy efficiency habits)

Socio-energy audits and features of dwellings	The main things that have been analysed: type of heating, electricity usage habits, energy efficiency habits. Daily habits of participants are influenced by: households living in a private house or apartment building. In apartment buildings, heating is provided from a supplier of heating services. In private homes, habits depend on the type of heating: gas heating, solid fuel heating, electric heating. As well as there are private houses in which solar panels are installed, which affects the cost of electricity, reducing them. At the end of energy audit following data has been gathered: 44% of households participating in the Test group are not energy poor, with 27% being slightly energy poor and an alarming 10% being extremely energy gow mark.
Socio-energy audits and household behaviour	It was difficult to reach out, to agree on the time of the conversation, but being on the spot, the participants were responsive.
Socio-energy audits and what advice were given to the participants	The main things analyzed: household income, household composition in comparison with the costs of heating and electricity. Accordingly, the obtained results provide recommendations for changing energy efficiency habits and improving the situation.
Socio-energy audits and what advice were given to the participants with the note what would be within the household's control, responsibility and budget to do.	Tips on the possibilities of renovating apartment buildings, but the main obstacle to renovation is the lack of funds for residents
Socio-energy audits and any other relevant details e.g. methods, intervention area, challenges, replication tips, and so on that you consider important.	The intervention group was interested in the possibility of obtaining a free consultation, it was found useful. The disadvantage of the energy audit, that the participants did not receive official certificates for the audit carried out, but only the





	assessment as a perce	entage. The project did not
	intend to issue certificat	tes.
Dates of the action		
March 2023 to November 2023		
Stakeholders involved during the implementation of the action (Implementation)		
Zemgale Regional Development agency, Social Support Department, Department of Real Estate		
Budget and resources		
Total payment for the work of the expert 7876,40 eur		
Risks that took place and what mitigation measures were taken, other relevant actions:		
List of risks that have taken place	Risk materialization a	nd what have been done
Participants are afraid to trust a stranger. One of	The project team talks with the participants about	
the active members of the group, after lengthy	/ the energy audit expert. (introduction to the expert,	
negotiations, withdrew from the energy audit.	encouragement of participants)	
Difficulty in reconciling the time for a conversation	Project team conversations with participants about	
	the usefulness of energ	y audit
Key Performance Indicators		
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY
	RESULT	RESULTS
Number of socio-energy audits conducted	146	115 (households)
Lessons learned and any replication tips for similar projects		
In the existing economic situation, it is hard to motivate people to participate if they do not get any direct		
honofite, other financial or other		
The public is well aware of energy caving measures and has put in place as much as financial consoity.		

The public is well aware of energy-saving measures and has put in place as much as financial capacity allows.

8.2.4 Action 2. Physical interventions

N/A

8.2.5 Action 3. Participants could follow the T/H/CO2

ACTION 3 Participants could follow the T/H/CO2

Describe intervention		
Each participant can watch the air quality readings on the display in their home. Air temperature, humidity and CO2.		
Dates of the action	First sensor turned on December 2022 until the end of data collection on August 31, 2024. Different start and end dates for each sensor (18 months)	
Provide information how participants could follow T/H/CO2 measurements		





x LED display of device	
Dashboard of Smart City Monitor	
□ Information provided by pilot's team, specify how	N:
□ Dashboard of local provider, specify how:	
□ Other ways, specify which ways:	
Stakeholders involved during the implementation	on of the action (Implementation)
Project team from Jelgava (JDC)	
Period covered of the implementation	With the first sensor turned on December 2022 until
	the end of data collection on August 31, 2024
Risks that took place and what mitigation meas	ures were taken, other relevant actions:
List of risks that have taken place	Risk materialization and what have been done
The participant suspects that the sensor shows false readings	The project team checks the data read in the Smart City monitor database and makes sure of a possible error the participant is informed about the situation: damaged equipment or readings within the norm.
Faulty devices	Good cooperation with the supplier, damaged devices were replaced
Key Performance Indicators	
KPI DESCRIPTION	IMPLEMENTATION KEY RESULTS
Number of devices with LED display distributed among participants	118 (households)
The planned number was foreseen if the maximu Fewer participants applied for the project and seve is lower.	m number of participants registered for the project. ral participants from one household, the total number

Lessons learned and any replication tips for similar projects

The number of purchases of equipment was successfully planned, technical breakdowns were found, equipment was replaced. Importantly, we chose sensors with displays, it is easy for participants to keep track of. Daily monitoring affected the size of the nature of the data. It's easy for participants to see the data on the display on a daily basis rather than locking down systems (especially for participants in years). Sensor equipment does not require special installation and is not connected to electricity, compact size that does not interfere.



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8.2.6 Action 4. Delivery of energy efficiency kit

ACTION 4 Delivery of energy efficiency kit			
Status of overall action			
X Finished			
□ Other			
Dates of the action	March 2023 to Novembe	r 2023	
Place where the action takes place			
X Participants' home			
□ Health Centre (please, specify)			
Municipality premises			
□ Other (please, specify):			
Describe intervention			
Together with the energy audit, the project particip light bulbs x3, an electrical extension cord, an adhe so that cold does not come indoors, citric acid x3 to	pants received an energy esive tape to glue the wind b descale the kettle.	kit consisting of electric led ow frames during the winter	
Stakeholders involved during the implementation	on of the action (Implem	entation)	
None			
Period covered of the implementation	March 2023 to Novembe audit	r 2023, receiving an energy	
Budget and resources			
energy kit goods: 1780,00 eur			
Risks that took place and what mitigation meas	ures were taken, other r	elevant actions:	
List of risks that have taken place Risk materialization and what have been done			
The same risks as receiving an energy audit	The same risks as receiving an energy audit The same risks as receiving an energo audit		
Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY	
	RESULT	RESULTS	
Energy Efficiency kits delivered	146	115 (Fewer participants than planned applied for the project and several participants from one household, therefore the total number is lower).	

Lessons learned and any replication tips for similar projects





The public is well aware of energy-saving measures and has put in place as much as financial capacity allows

8.2.7 Action 5. Energy efficiency advice, including energy bills optimization

ACTION # Energy efficiency advice, including energy bills optimization. Excursions to the Energy		
Efficiency Center. (Jūrmala)		
Status of overall action		
X Finished		
□ Other		
Dates of the action	June 2023 and Septe Excursions to the Energy	mber 2023, (together 4 Efficiency Center)
Place where the action takes place		
Participants' home		
□ Health Centre (please, specify)		
Municipality premises		
X Other (please, specify): Energy Efficiency Center	· in Jurmala energy compa	any "Elektrum"
Describe intervention		
The project participants went on an information tour to the Energy Efficiency Center to gain knowledge about saving energy resources and reducing bills.		
Stakeholders involved during the implementation of the action (Implementation)		
Zemgale Regional Development agency		
June 13,20 2023 and September 12,19 20234 Excursions to the Energy Efficiency Center		
Budget and resources		
1344,80 euro		
Risks that took place and what mitigation measures were taken, other relevant actions:		
List of risks that have taken place Risk materialization and what have been done		nd what have been done
Low participation in interventions Each participant has been personally addresse Different dates for membership are offere Transportation and snacks were provided.		een personally addressed. nembership are offered. cks were provided.
Key Performance Indicators		
KPI DESCRIPTION	Intended 146	52
Participants assisting to the trip		
Lessons learned and any replication tips for similar projects		
If the activity is organized on working days, there will be a low number of participants, as most participants are retired older adults. We could not influence, because the working hours of the center are on working days		





8.2.8 Action 6. Delivery educational/training

materials

ACTION # Delivery educational/training materials					
Status of overall action					
X Finished					
□ Other					
Dates of the action	Dates of the action March 2023 to November 2023				
Place where the action takes place					
X Participants' home					
□ Health Centre (please, specify)					
Municipality premises					
□ Other (please, specify):					
Describe intervention					
Together with the energy audit, the project participants received education/training materials to educate people on energy efficiency measures. Material issued to each household of the intervention group. After the conclusion of the pilot, it is planned to distribute all informative materials to different groups of the population.					
Stakeholders involved during the implementation	on of the action (Implem	entation)			
Zemgale Regional Development agency					
March 2023 to November 2023					
Budget and resources					
produced 3000 materials (2118.02 euro), distribute	d 115: 81,70 euro (handoi	uts)			
Risks that took place and what mitigation meas	ures were taken, other r	elevant actions:			
List of risks that have taken place	Risk materialization a	nd what have been done			
The information contained in the materials will already be known to the participants	A wide range of info measures for household	rmation on energy-saving ds has been collected.			
KPIDESCRIPTION	IMPLEMENTATION KE	I RESULIS			
Number of printed materials	3000	115*			
*After the end of the study (after the end of this activity), informative materials are distributed to different groups of residents of Jelgava region: schools, libraries, medical institutions, seniors'		2885			





associations, social centers, so that the material		
reaches all groups of society.		
Lessons learned and any replication tips for similar projects		

The training material includes a lot of useful tips on reducing energy consumption. The implementation of a number of recommendations requires the investment of financial resources, which are limited for most participants. For example: insulation of houses, purchase of new household appliances, replacement of windows, reconstruction of the heating system.

8.2.9 Action #7. Policy recommendations to the

governance on energy poverty

ACTION #7 Policy recommendations to the governance on energy poverty

Status of overall action			
Finished			
x Other			
Recommendations may be general, since the results of the study have not yet been compiled, the development of recommendations continues until the end of the project.			
Dates of the action	throughout the project		
Place where the action takes place			
Participants' home			
□ Health Centre (please, specify)			
Municipality premises			
x Other (please, specify): Municipal buildings			
Describe intervention			
The aim is to draw the attention of municipal policy-makers to the current situation of energy poverty, develop possible solutions and incorporate them into the strategy. The sustainable development strategy of a local government is a long-term spatial development planning document, which defines the vision, objectives, priorities for the long-term development of the municipality and spatial development perspective.			
Stakeholders involved during the implementation of the action (Implementation)			
Municipal services			
Period covered of the implementation	2022 and ongoing		
Budget and resources			
No budget needed in the project.			
Risks that took place and what mitigation measures were taken, other relevant actions:			
List of risks that have taken place	Risk materialization and what have been done		
-	-		





Key Performance Indicators		
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY
	RESULT	RESULTS
Organizing meetings with policy makers	2 Meetings with Policy makers	2 Meetings with Policy makers
Lessons learned and any replication tips for similar projects		

The municipal JELGAVA STATE CITIES AND JELGAVAS COUNTY DEVELOPMENT PROGRAM

2023-2029. includes activities aimed at promoting the renovation and energy efficiency of multi-apartment residential buildings.

8.2.10 Lessons learned during pilots preparation and implementation actions

Lessons learned	
Main challenges faced during the planning, preparation phase and implementation phase	It's hard to attract participants because participants don't see the benefit of sharing their data. Long-term process, participants do not want to agree. It was necessary to attract more human resources for recruitment, because direct and individual contact works best, it requires a lot of time resources. Difficulties in anticipating and planning the amount of work and workload for researchers. (it is impossible to predict the number of participants)
Difficulties in stakeholder engagement, resource allocation	Correctly define the benefits/benefits that will be derived from the membership. Limited number of human resources for a stakeholder, who are ready to engage in activities.
Data collection	Participants forget to transfer data (Informational SMS messages help to remember). Daily busyness, hard-to-schedule interview times, shifts in timeline, resulting in problems. The participants quickly got tired of the long participation. The idea of using wearables was not implemented, because a number of technical problems were seen there: compatibility of systems, technologies, continuous data transfer (additional provision with the Internet) technical complexity of devices, (the variety of mobile equipment is





	large) and it is difficult to evaluate, the most suitable equipment for collecting data. The level of digital skills of the population varies widely. There is no difficulty in training researchers in data entry, but the problem was that the data can be managed by the participant himself, where it is impossible to control (it should be possible to enter only the specific data relating to a particular month) if it is necessary to observe certain periods between interviews, these periods were necessary for the database to be calculated individually for each participant. Recommendation: the possibility for the project team to control the quality of the entered data. (see submitted responses) to make reasonable adjustments to the subsequent data collection process. (explanatory work)
Obstacles encountered during the actual implementation of interventions	The availability of working people to engage in activities that are organized. The inability to reach people at a certain time, as a result of which the timeline changes.
Key takeaways, and actionable recommendations for future projects based on the lessons learned	About the database: to study in more detail and timely the technical requirements within the framework of the entire project from the very beginning, not to change in the course of the process. There must be transparent and clear processes.
Offer advice on ensuring on the maintaining long-term benefits of the interventions after the project's finalisation	Educated participants on air quality and its improvement. (The opportunity to read the readings yourself), which has given the participants a positive experience to engage in similar projects in the future.

8.2.11 Success story

Excursions to the Energy Efficiency Center. (Jūrmala), as an activity (**Energy efficiency advice, including energy bills optimization**) who received very positive feedback from the participants.

Images, photos



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8.3 Leeds Pilot

Energy poverty in Leeds is measured principally through the 'Low Income Low Energy Efficiency' measure that is the standard measure of the UK government for England. There are just under 180,000 households in Leeds. The main activity that has been under consideration from the Wellbased project is the energy renovation of 300 households.

We are able to report very positive effects for those households that have received this renovation in the qualitative data collection as part of the project. The apartments concerned now are categorised as either EPC C or EPC B, showing a substantial improvement in efficiency. Apartments have had insulated cladding installed to the outside of the buildings and they have also been connected to the district heat network in Leeds – Leeds PIPES – giving tenant much more reliable, cheaper and more responsive access to warmth in the winter.

The following table provides a summary of the intervention actions implemented in the Leeds pilot, including the number of participants in actions performed, the timing of interventions providing an overview of the pilot's efforts to address energy poverty at the household level during WELLBASED project.

Intervention actions:	Number of participants affected by the action	Timing of interventions (start from the first participant and the
		end of intervention with the last participant that receives it)





Green doctor visits to	1	Nov 22 – Mar 23
participating nousenoids		
Renovating apartments in 3	30	November 2022-March 2024
tower blocks in the centre of		
Leeds		

8.3.1 **Reflections on the recruitment process**

How different factors influenced the recruitment process

The Leeds pilot is a collaboration between the University of Leeds and the Leeds City Council. Leeds City Council lead on the renovation works (the implementation of the intervention action), University of Leeds leads on the research. Leeds City Council are also the entity with agreements with Linking Leeds (social prescribing) and Green Doctors (energy efficiency advice and benefits checks). The principal activity was a substantial renovation of 3 tower blocks in the centre of Leeds, which include 100 apartments in each block. The insulated cladding work on these buildings was complete by August 2023, and internal heating upgrade (from storage heating to district heating) was complete by about March 2024.

The efforts associated with receiving the intervention were very low – basically all of our intervention group participants were already receiving the intervention, we then had to recruit them into the research activities. Our sample found the research activities onerous, and we did not recruit a full sample, then struggled to maintain the sample over the life of the project.

Any differences in how the Intervention and Control Groups were approached		
Intervention Group	Control Group	
Intervention group was recruited through a range of	Control group was approached only by email - with	
means: by email, phone, in person by running an	an email sent to all Leeds City Council Tenants	
information desk in the lobby of each building, and	asking for people to express their interest in	
by letter to each of the addresses.	involvement.	

Gender consideration	
Recruitment	We have a very small intervention group, but it includes a mix of men and women. Control group is also mixed.
Interventions	Interventions were delivered to everyone living in three tower blocks, and as such were gender blind.
Analysis (if applicable)	Analysis will occur after the completion WP3 and implementation intervention actions as part of Work Package 4.





Other	relevant	We have many participants from ethnic minority groups in the intervention
considerations	5	group, the control group is less diverse.

8.3.2 Interventions in pilot



8.3.3 Action 1. Socio-energy audits

ACTION 1. Socio-energy audits	
Status of overall action	
⊠ Finished	
□ Other	
Description of what and how have been perform	ed for Socio-energy audits
Control group participants were offered energy and	I benefits advice through the green doctors scheme
as part of our project, but only one of the participant	ts (n=1) actually took this up. As such we can report
no effects.	
Socio-energy audits and features of dwellings	NA
Socio-energy audits and household behaviour	NA
Socio-energy audits and what advice were given to	NA
the participants	
Socio-energy audits and what advice were given to	NA
the participants with the note what would be within	
the household's control, responsibility and budget	
to do.	





Socio-energy audits and any other relevant details e.g. methods, intervention area, challenges, replication tips, and so on that you consider important.	NA	
Dates of the action		
November 2022 – March 2023		
Stakeholders involved during the implementation	n of the action (Implem	entation)
Green Doctors – a local NGO which has partnered with Leeds City Council to offer individualised energy advice to households.		
Budget and resources		
From existing LCC budget.		
Risks that took place and what mitigation measu	ures were taken, other r	elevant actions:
List of risks that have taken place Risk materialization and what have been done		nd what have been done
We had the risk that people would not be interested This risk materialised. Given this is an option		Given this is an optional
in this offer – it was an optional measure	measure we continued additional uptake.	to promote it but with no
Key Performance Indicators	1	
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY
	RESULT	RESULTS
Number of socio-energy audits	20/125 people	1/30 participants
		participated
Lessons learned and any replication tips for similar projects		
People did not think they needed additional advice. They were very familiar with energy saving, and did		
not see the value of a visit from Green Doctors.		

8.3.4 Action 2. Physical interventions

ACTION 2 Physical interventions		
Status of overall action		
⊠ Finished		
□ Other		
Dates of the action	November 2022-March 2024	
Place where the action takes place		
⊠ Participants' home		
□ Other (please, specify):		
Describe physical interventions		
Substantial renovation of 3 tower blocks in the centre of Leeds, which include 100 apartments in each		
block. The insulated cladding work on these buildings was added by August 2023, and internal heating		
upgrade (from storage heating to district heating - linking to Leeds Pipes network) was complete by about		





March 2024. This radically improved the energy efficiency of the buildings, and improved both the level of heating available, but also its responsiveness. Storage heating only delivers heat in the night and morning, whereas district heating can be turned on and off during the day.

Are physical interventions accompanied by training and advice about how best to use the new facilities

Insulation did not require training. Ventilation systems can not be turned off. A limited introduction to the new heating system was given by heating engineers. There is a minimal amount of training – showing people how to use the new thermostat, how to turn the thermostat up and down and how to turn it off. This is given by the company that is fitting the district heating into the apartment blocks.

Stakeholders involved during the implementation of the action (Implementation)

The stakeholders involved in the implementation were: employees of Housing Leeds; employees of Leeds Building Services; employees of Equans; local elected members; tenants; tenant representative groups; Linking Leeds; and the Green Doctor.

Period covered of the implementation

Nov 2022 – March 2024

Budget and resources

The work was financed through Leeds City Council's Capital Programme for housing repairs which is an ongoing programme that tackles issues across the 54,000 social housing properties that the council manages.

Risks that <u>took</u> place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what have been done
The rehabilitation project was late to start, which	It was impossible to extend the key tenant liaison
meant that we had to recruit late, and that data	person (Yanmike Olowe) contract after March 2024
collection did not get underway until November.	as budget for this role had run out. This resulted in
This had effects for employment contracts.	a break in contact with intervention group
	participants.

Key Performance Indicators

KPI DESCRIPTION	PLANNED KE RESULT	Y IMPLEMENTATION KEY RESULTS
Number of households renovated	300	In total 300 households were renovated amongst which the building, out of which 30 households were part of the WELLBASED project (recruited to the intervention group)

Lessons learned and any replication tips for similar projects

This was an effective intervention. Communications with tenants could be more effective – there was some worry and uncertainty throughout due to the rather limited communications with Leeds City Council's buildings team.





As the intervention was delivered externally to the Wellbased Project it meant that the project team had very little opportunity to influence what happened and the timescales involved. This meant the team had to work in a very reactive manner. Therefore, in future projects it would be advantageous to ensure that the intervention is part of the project so that the timescales, priorities etc are known upfront and are in the gift of the project team to influence.

8.3.5 Lessons learned during pilots preparation and implementation actions

Lessons learned	
Main challenges faced during the planning, preparation phase and implementation phase	The main issue faced when undertaking the refurbishment of the blocks was ensuring that the project ran to time and the disruption to tenants was minimised. The work involved staff from a number of different agencies which meant that the different work packages had to be carefully co-ordinated.
Difficulties in stakeholder engagement, resource allocation	Engaging with tenants is difficult as there is not a single route to take and therefore a number of media need to be covered. Methods such as notices in entrance ways of the blocks, letters, emails and social media posts were all employed but this does not ensure that everyone has received the information, and even then, it cannot be guaranteed that they have absorbed it. It is therefore key that there is a consistent message across all the forms of communication that are used. However, if things change or timetables shift it is difficult to ensure all tenants have received the most up to date information.
Data collection	As Leeds City Council was already using LoRaWAN network and had its own network place it made the data collection more straight forward as the technology and knowledge was already in place.
Obstacles encountered during the actual implementation of interventions	As with any major project there were slippages in timescales which meant that the project overran a little.

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	One of the major obstacles that was experienced was the impact that the weather had on certain works. As a lot of work was to the exterior of the building there were times when work had to be paused as due to high winds etc.
Key takeaways, and actionable recommendations for future projects based on the lessons learned	Make more resource available to engage with tenants to make sure they are clear about the scope of the work and also the timescales. As a lot of tenants work outside of usual office hours (9-5) the engagement needs to acknowledge this and be available at a range of times. It also needs to be available in a range of languages as the tenants come from a number of backgrounds.
Offer advice on ensuring on the maintaining long-term benefits of the interventions after the project's finalisation	As one of the aspects of the project was a change to the heating system it is vital that tenants are given details of how to operate the new system, how to get the best from the system and what options are available to operate it in the most economical manner.

8.3.6 Success story

Images, photos

One of the success moments in the intervention was when our Health Data Technician – Yanmike Olowe – pointed out an irregularity in a respondent's blood pressure which needed medical attention. Following this being flagged to his attention he went to his GP and is since being treated for the condition, and enjoying an improved quality of life.

Another success moment was noted at the second data collection point for qualitative interviews. Almost all of the interviewees were really happy with the changes that had been made to their home, noting improved warmth, and the increase in control that they achieved over their temperature as critical elements of the renovation's success.



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8.4 Municipality of Heerlen (Netherlands)

Accordingly, to the Economy and Finance managed by Directorate-General for Economic and Financial Affairs EC, "the Dutch economy slowed down considerably in 2023 as inflation weighed on private consumption and the weak external environment held back exports." In 2024 Heerlen, a former coal mining centre in the southeast of the Netherlands, still faces challenges related to energy affordability and access for its low-income residents. Many actions were developed by the Municipality of Heerlen while the open talks and the data collection were specifically designed for WELLBASED project.

The following table provides a summary of the intervention actions implemented in the Heerlen pilot, including the number of participants in actions performed and the timing of interventions (please note that no WELLBASED KPIs have been established for the actions implemented by the Municipality outside WELLBASED project)

Intervention actions:	Number of participants affected by the action	Timing of interventions (start from the first participant and the end of intervention with the last participant that receives it)
Social-energy audits//Digital Parkstad energy app	N/A	1 October 2022 to 31 December 2024 (beyond the intervention
Delivery energy box	N/A	actions phase)
Home visits from an e-coach, personal energy advice/training	N/A	November 2022 to December 2024.
Energy debt support	N/A	During 2022
Training professionals on energy poverty	N/A	December 2022 2 tailor-made training courses
Open talks/community meetings	52	September 2023 to May 2024
Communication campaign	N/A	Nov 2022 Febr. 2025
Collaboration with housing corporations	N/A	April 2022 – still ongoing as of October 2024
Local stakeholders network collaboration	N/A	Oktober 2022 and stilt on going as of October 2024
Participants could track the T/H/CO2	141	June 2023- September 2024





8.4.1 **Reflections on the recruitment process**

How Different Factors Influenced the Hiring Process

Energy Crisis October 2022

The energy crisis that erupted in October 2022 brought significant attention to energy poverty. Previously, energy poverty was rarely discussed, but it suddenly became a major topic on TV and radio. This increased awareness positively impacted our recruitment of participants. We encountered the following challenges:

- 1. Poverty in the broadest sense and its impact on people living in it.
- 2. A general distrust of government institutions.

1. Accounting for Poverty

We knew we would be working with people who often live in poverty, sometimes for extended periods. These individuals frequently lead isolated lives, making them difficult to reach. Their primary concern is getting by in an increasingly expensive society, so participating in a long-term study was understandably not their priority. Our challenge was to create a process that would encourage this group to join the project while minimizing any additional burden on them.

Financial Incentive

We managed to persuade participants by offering a financial incentive. Every time they completed a questionnaire, they received a €25 gift voucher to use for groceries at the supermarket.

Minimizing Participant Burden

Wherever possible, the research was conducted online. Participants received questionnaires via email with a link, allowing them to choose when and where to complete them, provided it was within the set deadline. We only scheduled in-person appointments for participants who struggled with the questionnaires.

Participants in the intervention group received measurement devices at home. Environmental measurements (temperature, humidity, CO2 levels, and particulate matter) were collected automatically, requiring no additional effort from participants. However, for health measurements like blood pressure, oxygen saturation, and air quality, participants had to use the equipment provided by Chipmunk. If they wished to view the results, they had to log in to a platform. The collected data was automatically sent to a database.

2. Addressing Distrust in the Government

In addition to living in poverty, many in these communities also harbor a deep distrust of the government. This distrust isn't easily resolved and was a challenge the municipality had to consider when recruiting participants. In Chipmunk Health BV in Heerlen (hereafter Chipmunk), the municipality had found a company that could carry out data collection and management. Chipmunk was already familiar with providing health measurements at clients' homes often on behalf of healthcare providers. This made participants feel confident about managing their privacy data and handling collected data...





Recruitment Methods

We employed several methods to recruit participants:

- Invitations by Letter: Almost all residents in Heerlen-Noord (Hoensbroek and Heerlerheide districts) received a letter inviting them to participate.
- Flyers: We distributed flyers at various events in Heerlen-Noord.
- Posters: Posters were displayed at all community centres.
- Informing Professionals: We informed all professionals working with residents in these neighbourhoods, including social workers, housing corporations, and municipal colleagues. These professionals often engage with residents directly and could help spread the word about our project and assist with recruitment.
- Organizing Meetings: Together with Chipmunk, we organized meetings in various neighbourhoods throughout Heerlen-Noord.
- Energy Coaches: The energy coaches at the Woonwijzerwinkel (hereafter one-stop-shop) were informed about the WELLBASED project and shared it with the residents they visited.

Any differences in the way the intervention and control groups were approached

There was no difference in the approach between the intervention and control groups. Once the intervention group reached capacity, participants were placed in the control group.

Attention to men and women		
No separate approach was devised until approaching the different genders. However, there was a focus on other issues in Heerlen North, such as people of different ethnicities or those with low literacy levels.		
Recruitment	Existing neighbourhood meetings for people with low literacy and individuals (mostly women) with foreign backgrounds were utilized. These gatherings provided an opportunity to share the story of WELLBASED.	
Interventions	N/A	
Analysis (if applicable)	N/A	
Other relevant considerations	N/A	



WELLBASED

8.4.2 Interventions in pilot



8.4.3 Action 1. Energy efficiency training

ACTION #1 energy efficiency training and advice		
State of play of the action		
Finished		
□ Other		
Dates of the action	November 2022 to June 2024	
Place where the action takes place		
Participants' homes (advice)		
□ Health center (please specify)		
Municipal buildings		
Other (please specify): One-Stop-Shop (One-stop-shop) (training)		
Describe intervention		
Residents (people suffering from energy poverty) can benefit from advice on energy efficiency. This is		
offered at various levels by energy coaches trained by the One-stop-shop. The advice includes:		
- How to use your home more efficiently.		
 What actions you can take to reduce energy costs. 		
 Who to contact for questions or challenge 	lS.	
The One-stop-shop and the GGD jointly developed customized teaching materials.		




These materials were designed to provide social workers (not energy coaches) with insights on energy saving and how to properly ventilate homes. This enables them to offer some advice during home visits on how to apply simple energy-saving measures and improve home ventilation.

Training and Home Visits with Energy Advice

The One-stop-shop trained at least 100 energy coaches in one year. These energy coaches have been active in neighbourhoods since November 2022. During home visits, the energy coaches gave advice on implementing small energy-saving measures.

Action Heerlen

Because the use of the free energy coach and the E-wallet lagged behind, a new action was started in March 2023 called: "The Heerlen Lamp Change Days" . We then started ringing doorbells in every neighbourhood to exchange non-energy-efficient bulbs for more energy-efficient ones, and made the resident aware of all the other subsidies in the field of energy-saving measures (Energy Surcharge, E-wallet, free energy-saving coach and the white goods exchange campaign). These small energy-saving measures could be purchased through the E-wallet from affiliated building companies or directly from the One-Stop-Shop. These included more energy-efficient light bulbs, draught strips, water-saving shower heads, etc. During this visit, attention was also paid to all white goods appliances in the house and there was the opportunity to replace one energy-guzzling appliance for free with a more energy-efficient one at one of the affiliated white goods dealers. In some cases, the energy coach visited people for a 2nd time to help them install the purchased small energy-saving measures.

Stakeholders involved in the implementation of the action (implementation)

One-Stop-Shop, Municipality of Heerlen, Housing Corporations, Heerlen Stand-by! (Community workers and social counselling) and the GGD (local public Healthcare to provide knowledge in developing training material).

Period of	impl	ementation
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November 2022 to December 2024.

Budget and resources

No resources from WELLBASED were used for this purpose. Nationally obtained recources (SPUK funds) were used.

Risks that <u>have occurred</u> and what mitigation measures have been taken, other relevant actions: List of risks that have occurred Risk materialization and what has been done

The effects of the energy crisis in the Netherlands are still being felt. As a result, numerous initiatives have emerged to tackle energy poverty at various levels. People need assistance, and support is coming from different angles, including through the WELLBASED project. This help is not limited to the

It wasn't just the 70% of people in the intervention group who received assistance; more than 10,000 families in Heerlen affected by energy poverty were also helped.





intervention group but is available to all residents of Heerlen.		
Key Performance Indicators		
KPI DESCRIPTION	PLANNED KEY OUTCOME	MAIN RESULTS OF THE IMPLEMENTATION
Home visits from an e-coach, personal energy advice/training	Min 4 energy efficiency trainings	N/A More than 10,000 people in Heerlen received help with energy poverty, not just the people in the intervention group, out of which 141 participants of WELLBASED project
Provide energy box to participating households	1 energy box to min 50% of participating households	More than 10,000 people in Heerlen received help with energy poverty, not just the people in the intervention group, out of which 141 participants of WELLBASED project
Lessons learned and any replication tips for sim	ilar projects	
The energy crisis and its repercussions (including the acquisition of national subsidies and municipal		

The energy crisis and its repercussions (including the acquisition of national subsidies and municipal policies) have significantly impacted our project. We have learned that implementing changes in such a large-scale project is challenging.

Action 2. Energy debt support 8.4.4

June – December 2022
pport teams





Describe intervention

We organized six information sessions with the social domain (Debt Counselling team, Income team, Stand By, and Alcander). During these sessions, we informed professionals about all available options for supporting individuals affected by energy poverty, including national and municipal subsidies. This enabled them to provide better guidance to the people they assist. D3.3 indicated that we would continue these sessions in 2023. However, due to unchanged policies during this period, we did not proceed with this action.

Stakeholders involved in the implementation of the action (implementation)

Debt counselling team of the municipality of Heerlen, Stand BY! and volunteer organization Alcander-Schuldhulpmaatje.

2022

Period of implementation

Budget and resources

No resources from WELLBASED or other sources were used.

By seamlessly integrating the activity into existing municipal processes, no resources from WELLBASED were utilized. As a result, budgeting and coverage for this were not included in the WELLBASED project. The social domain utilizes its own professionals, who are already involved in debt counseling and part of the social department network in Heerlen. In addition to their regular duties, they now also provide supplementary information on energy saving.

Risks that have occurred and what mitigation measures have been taken, other relevant actions:

List of risks that have occurred	Risk materialization and what has been done	
Because we can only provide basic information about debt support and have no money to pay the debts, we are limited in our support.	By communicating well and managing expectations.	
There is a lot of information available from different	We have shared the most reliable and sustainable	

angles (government, Municipality etc) websites with everyone in the past. Our new website will be presented at the end of 2024. This will contain all relevant information regarding sustainability in Heerlen.

Key Performance Indicators		
KPI DESCRIPTION	PLANNED KEY	MAIN RESULTS OF
	OUTCOME	THE IMPLEMENTATION
Sharing information about current changes and	1	Quarterly meetings and
identifying the key contact persons for debt	Provide (energy) debt	project report
counselling and .	advice in at least 60%	
	of cases	
(info and presentation) Meeting with volunteers and	2	>2
professionals Share information, experiences and		
best practices.		
Lessons learned and any replication tips for similar projects		





There is no need to give a presentation every quarter. Information sessions for the social domain (including the Support Department and volunteers) are only necessary when there are changes in policy. Since November 2022, there have been no such changes.

8.4.5 Action 3. Socio-energetic audits (delivery

energybox/ Digital Parkstad energy app

ACTION 3. Social-energy audits/delivery energy box/Digital Parkstad energy app

State of play of the action

□ Finished

The use of the E-knip, free energy saving coach and exchange of white goods will run until 31-12-2024. Receiving financial support (energy allowance) ran until 30-06-2024.

Energy crisis

As much as 14.9% of Heerlen's population entered energy poverty in 2022 due to the energy crisis. Partly for this reason, the municipality also decided that <u>all</u> residents of the municipality experiencing energy poverty should be given extra support through a financial allowance and an energy box (consisting of E-wallet, free energy coach and white goods exchange). As a result, social energy audits could not take place specifically for participants in the intervention group.

National Subsidies for Low-Income Families

In Heerlen, all low-income residents are entitled to support in cases of energy poverty. In 2022 and 2023, individuals with incomes up to 130% of the social assistance standard were eligible for an energy allowance of up to €1,300. This primarily included those already receiving benefits from the municipality of Heerlen (approximately 8,500 people). Residents with incomes up to 130% of the social assistance standard received a letter from the municipality containing a QR code. This QR code allowed them to download a digital wallet (the E-wallet, worth €250) onto their phones. This budget could be spent on energy-saving products at affiliated DIY stores. Additionally, a free energy coach visited their homes to provide personalized advice on energy-saving measures. People could also exchange an energy-inefficient white good for a more modern, energy-efficient one at no cost. There was also energy poverty among those working but on low incomes. Municipality decided to also help this group of people with an income between 130 and 175% of the social assistance standard. They also got the chance to also use the E-wallet (worth €100.00), the free energy savings coach and the white goods exchange campaign. In implementing these measures, the One-Stop-Shop assisted. They provide the energy coaches and ensure that the right white goods are exchanged

Door-to-Door Campaign

Unfortunately, letters from the municipality are not read or understood by many people. Lacking the use of the QR code in the letter, municipality launched a doorbell campaign. A team of energy coaches and a professional from municipality went into the neighbourhoods in 2023 and rang everyone's doorbell. The





team thus brought all possible subsidies to people's attention and, where people needed help, provided				
it.				
Description of what and how has been carried out for social energy audits				
N/A				
Socio-energy audits and characteristics of homes	Socio-energy audits and characteristics of homes N/A			
Social-energy audits and household behaviour	N/A			
Socio-energetic audits and what advice was given to the participants	N/A			
Social-energy audits and what advice was given to	NA			
the participants with the note of what would be within the control, responsibility and budget of the household to do.				
Socio-energetic audits and any other relevant details such as methods, area of intervention, challenges, replication tips, and so on that you find important.	NA			
Dates of the action				
1 October 2022 to 31 December 2024				
The E-wallet campaign will run for the municipality c	of Heerlen until 31 Decen	nber 2024.		
Stakeholders involved in the implementation of the action (implementation)				
Parkstad municipalities, One-Stop-Shop, hardware stores and white goods traders.				
Budget and resources				
No resources of WELLBASED were used. We've used National subsidies for this purpose (SPUK funds).				
Risks that have occurred and what mitigation measures have been taken, other relevant actions:				
N/A				
List of risks that have occurred	Risk materialization a	nd what has been done		
N/A	N/A			
Key Performance Indicators				
KPI DESCRIPTION	PLANNED KEY	MAIN RESULTS OF THE		
	OUTCOME	IMPLEMENTATION		
N/A	N/A N/A N/A			
Lessons learned and any replication tips for similar projects				
N/A				



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WELLBASED

8.4.6 Action 4. Training professionals on energy

poverty

ACTION 4 Training professionals on energy poverty			
State of play of the action			
⊠ Finished			
□ Other			
Dates of the action	6 and 13 December 2022.		
Place where the action takes place			
Home of the participants			
Health center (please specify)			
Municipal buildings			
Other (please specify): One stop shop			
Describe intervention			
Together with the GGD, we developed a tailored tr	aining program for social w	orkers from Heerlen Stand	
BY! This group received training on how to ide	entify energy poverty and	share the following basic	
knowledge:			
- How to use a home more efficiently.			
 Ways to save on energy bills and how ea 	sily energy-saving measure	es can be implemented.	
 Where individuals can seek help and adv 	ice for their questions and o	challenges.	
Stakeholders involved in the implementation of the	e action (implementation)		
Social Workers of Heerlen Stand BY, One-Stop-Sh	nop and the GGD		
Period of implementation	Period of implementation In December 2022, 2 trainings took place for social		
Dec 2022	workers and community we	orkers.	
Budget and resources			
The cost of these trainings was €1,150.00 and was	s covered from the WELLB	ASED budget	
Risks that have occurred and what mitigation mea	sures have been taken, oth	er relevant actions:	
List of risks that have occurred	Risk materialization and what has been done		
Incorrect information among the social workers	s The information provided by the OneStopShop and		
and energy coaches can lead to	I energy coaches can lead to GGD to the social workers and energy coaches was		
misunderstanding and distrust among the people	the same.		
in the target group			
Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY	MAIN RESULTS OF	
	OUTCOME	THE IMPLEMENTATION	
At least 2 energy-saving training courses for	At least 2 energy-saving training courses for 2 tailor-made training 2 tailor-made training		
protessionals Heerlen Stand-By (social domain) -	courses	courses	
2 training courses at the one stop shop.			
Lessons learned and any replication tips for simila	r projects		





There are no lessons learned here, everything went as expected.

8.4.7 Action 5. Open talks/ community meetings (for the intervention group)

ACTION 5 Open talks/community meetings

State of play of the action

S Finished

□ Other

Wellbased pilot believes in community meetings for the people involved in the project research. Together with the local communities and Stand-By, we brainstormed how to keep the community involved during the project. That is where the Health-cafés were conceived. A total of 6 Health-cafés were organised. Here, progress, lessons learned, energy advice and Q&A were shared in a relaxed and quite warm atmosphere. This also kept people motivated and involved in the Welbased project. Due to a change in approach, the health cafes were only accessible to participants in the Intervention Group. (see also action point 3)

Dates of the action

September 2023 to May 2024

Place where the action takes place

- Home of the participants
- □ Health center (please specify)
- Municipal buildings
- Other (please specify): Community houses local neighbourhood

Describe intervention

In September 2023, the first two Health Cafés were held. Given that Heerlen Noord is a large area covering two districts, the decision was made to organize the meetings in two separate neighbourhoods. At these Health Cafés, participants received updates on the project, learned about municipal support available for addressing energy poverty, and were asked to suggest topics for future sessions. Attendees indicated their interest in learning more about home ventilation, energy-saving practices, and health.

In January 2024, two Health Cafés were scheduled. However, due to severe winter weather, one meeting was postponed to February 2024. During these sessions, the GGD (Municipal Health Service) presented on home ventilation, and the One-Stop-Shop discussed DIY energy-saving measures. A stand was also set up displaying various energy-saving products. Participants shared their own tips on how they save energy.

The final two Health Cafés took place in May 2024. These meetings featured a workshop titled "My Positive Health," led by a Lifestyle and Vitality Coach. **Explanation:**





What is Positive Health?

Positive Health is a conversational tool that encourages individuals to reflect on their overall health, identify desired changes, and determine the support they need from their environment.

The Spider's Web

Participants use the "spider's web" tool to assess various aspects of their life by assigning numbers to different areas. This visual representation helps highlight which areas need attention, fostering awareness and prompting individuals to take action or seek help as needed.



Everyone who attended filled out the spider's web for themselves.

Newsletter

After each Health Café, a newsletter was created summarizing the information discussed during the meeting. This newsletter was sent to all members of the intervention group, including those who could not attend the meetings. This ensured that everyone in the intervention group received the same information.

Stakeholders involved in the implementation of the action (implementation)

Municipality of Heerlen, Chipmunk, GGD, One-Stop-Shop and a Lifestyle and Vitality Coach.

Period of implementation September 2023 – May 2024

Budget and resources

The cost of these trainings was €1,597.00 and was covered from the WELLBASED budget

Risks that <u>have occurred</u> and what mitigation measures have been taken, other relevant actions: Attendance at these meetings was lower than expected. The combination of completing questionnaires, attending Health Cafés, and participating in other meetings was perceived as time-consuming and intensive. It is believed that this contributed to a loss of interest among participants.

Despite this, by maintaining regular contact with participants, we were able to keep them engaged in the project, even if they did not attend the Health Cafés.







List of risks that have occurred	Risk materialization and what has been done		
Low attendance at gatherings	Inviting the people in a timely manner.		
	Reminder of the invitation 1 week in advance.		
	Indicate the topic that was discussed		
	After each health café, a newsletter was created with all the information discussed during the meeting. This newsletter was sent to all members of the intervention group, including those who could not attend the meetings. This ensured that everyone in the intervention group received the same information.		
Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY OUTCOME	MAIN RESULTS OF THE IMPLEMENTATION	
Community meetings in Heerlen Noord and open conversations about energy poverty	Minimum of 4 open talks about energy poverty issues in Heerlen	There were 6 health cafes held in different districts of Heerlen Noord.	
Lessons learned and any replication tips for similar projects			
It is a well-known fact that public meetings in Heerlen are not always well attended. There may be various reasons for this, but no research has been done into this. In order to better approach the purpose of the meetings in the future, other means will also have to be used to reach and motivate people to come.			

8.4.8 Action 6. Communication campaign

ACTION 6 Communication campaign		
State of play of the action		
□ Finished		
⊠ Other		
(if you have checked Other, please give your expla	anation and relevant details here)	
Our communication plan is still ongoing.		
Dates of the action Nov 2022 Febr. 2025		
Place where the action takes place		
Home of the participants		
□ Health center (please specify)		
Municipal buildings		
□ Other (please specify):		





Describe intervention

Recruiting

The city newspaper ('citynews') published six times a year by the municipality regularly highlighted energy poverty and related issues. So was the call to join the Welbased project. Many neighbourhoods also circulated the call in their own local paper or 'neighbourhood newsletter'. Much information was also published on the community website. The project was brought to the attention of colleagues who were thought to be of interest. Additionally, a wealth of information was made available on the community's website. Flyers and posters were distributed in community centers to reach a broader audience.

Update

Participants in the Intervention Group received regular newsletters, keeping them informed about the various topics discussed during the Health Cafés. Additionally, all participants received periodic updates on the overall progress of the project through a newsletter.

Communication at the End of the Project

By the end of this year, an article outlining the initial findings of the research will be published in the local city newspaper. We are also considering publishing an article in regional or even national newspapers, depending on the significance of the news. TV coverage may also be pursued based on the newsworthiness of the results. At the conclusion of the project, we will publish an article in the local newspaper summarizing the research outcomes.

Stakeholders involved in the implementation of the action (implementation)

Municipality of Heerlen, Chipmunk, Dagblad de Limburger (regional newspaper), local social organizations and housing associations.

Period of implementation

Nov 2022- Feb 2025

List of states the state

Budget and resources

By cleverly fitting the activity into ongoing processes, no resources from WELLBASED were used for this purpose.

Risks that have occurred and what mitigation measures have been taken, other relevant actions:

Risk materialization and what has been done	
-	
PLANNED KEY	MAIN RESULTS OF
OUTCOME	THE IMPLEMENTATION
Publications in min 3	Publish in the city
local neighbourhood	newspaper
newspapers /	Publish with local
websites	stakeholders including
	National Program
	Heerlen Noord, the social
	housing corporations and
	social organizations"
	- PLANNED KEY OUTCOME Publications in min 3 local neighbourhood newspapers / websites



WELLBASED

Lessons learned and any replication tips for similar projects

There was a lot of communication at the beginning of the project to raise awareness of WELLBASED among residents, partners and other interested parties and thus to recruit people. On the contrary, during the duration of the project, there was little focus on communication.

Now that the project is coming to an end, communication is again being considered. It will then be specifically about the research findings and recommendations. It is of utmost importance that long-term projects such as Welbased are constantly communicated widely. Not only with the participants, stakeholders and politicians. This way, the connection to the project is maintained.

8.4.9 Action 7. Collaboration with housing

corporations		
ACTION 7 Collaboration with housing corporations		
State of play of the action		
□ Finished		
⊠ Other		
Still ongoing.		
Dates of the action April 2022 – still ongoing	Especially at the beginning of the project, monthly meetings were held to collaboratively shape its content and maximize cooperation. Once the project was up and running, the need for regular meetings decreased. However, now that the first research results are approaching, it is important to come together again and explore how we can continue to support each other in the future.	
Place where the action takes place		
□ Home of the participants		
□ Health center (please specify)		
Municipal buildings		
Other (please specify): One-stop-shop an	d office of housing corporations	
Describe intervention		
The municipality and housing corporations meet regularly to discuss planning, priorities in housing renovations and actions on sustainable energy-saving measures. After all, residents depend on the social housing corporation when it comes to energy-saving measures. More impacts can be measured through larger renovations (e.g. double glazing, insulation, solar panels, ventilation, etc.). In the fight against energy poverty, good cooperation with various stakeholders in the		





field can be of great benefit. The measures to be taken can be used more efficiently and the comfort of			
residents improved. Cooperation and achieving the common goal are the key words.			
Stakeholders involved in the implementation of the	action (implementation)		
Social housing corporation, Municipality of Heerlen	, Chipmunk and the Social	I domain.	
Period of implementation			
April 2022 ongoing	Regular meetings		
Budget and resources			
No resources of WELLBASED were used.			
Risks that have occurred and what mitigation meas	sures have been taken, oth	ner relevant actions:	
List of risks that have occurred	Risk materialization a	nd what has been done	
During the energy crisis, good planning was difficult	Efforts to align the plan	nning of the WELLBASED	
because resources, materials and staff were	project with the housin	ng corporations' schedules	
scarce. This made it difficult to link Wellbased	have ceased, as this pr	have ceased, as this proved unfeasible. However,	
project planning to it. High-impact interventions	the following developme	ents have taken place in the	
may be missing, it may be that only the smaller	meantime:		
interventions are carried out and the larger			
renovations are postponed.	1. National agreements have been made		
	with housing c	with housing corporations to ensure that	
	all rental homes in the Netherlands with		
	energy labels E, F, or G (very poor) will be		
made sustainable by 2028. By that tir			
	these homes must meet energy label		
	standards of B (very good). C. or D.		
	2. Every four years, the municipality		
	establishes ne	w performance	
	agreements wi	ith all housing corporations	
	within its jurisd	liction	
	Within to juniou		
Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY	MAIN RESULTS OF	
	OUTCOME	THE IMPLEMENTATION	
Regular consultations with social housing	Collaborating with at	A meetings every 6-8	
corporations	least 2 social housing	weeks.	
	corporations		
	. p		
Lessons learned and any replication tips for similar projects			
A crisis always remains an unpredictable factor	r for society However	through cooperation risk	

A crisis always remains an unpredictable factor for society. However, through cooperation, risk assessments, and flexible planning adjustments, we can prevent crises from escalating into disasters.





8.4.10 Action 8. Policy advocacy plan

ACTION 8 Policy advocacy plan		
State of play of the action		
□ Finished		
⊠ Other		
Still ongoing.		
Dates of the action Oct 2022- ongoing		
Place where the action takes place		
□ Home of the participants		
□ Health center (please specify)		
🛛 Municipal buildings		
□ Other (please specify):		
Describe intervention		
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ea Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used	ch municipality. This plar ne fight against energy p the energy box (E-wallet	overty in 2024 with its own t, free energy saving coach
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ea Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used and white goods appliance exchange) could apply for In addition, new policies for the coming years are a saving energy by applying small energy-saving re improvements such as making poorly insulated hom Nationally, a subsidy has been made available to als homes with a low energy label (E, F and G) and a home	ich municipality. This plar ne fight against energy p the energy box (E-wallet or it until December 2024 already being drafted. Pr neasures. Now the focu es more sustainable. o motivate low-income ho ouse value of up to €219,	n ended in December 2023. overty in 2024 with its own t, free energy saving coach eviously, the focus was on us is mainly on structural omeowners to insulate their .000.
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ea Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used and white goods appliance exchange) could apply for In addition, new policies for the coming years are a saving energy by applying small energy-saving re improvements such as making poorly insulated hom Nationally, a subsidy has been made available to als homes with a low energy label (E, F and G) and a hor Stakeholders involved in the implementation of the a	ich municipality. This plar ne fight against energy p the energy box (E-wallet or it until December 2024 already being drafted. Pr neasures. Now the focu es more sustainable. o motivate low-income he buse value of up to \in 219, action (implementation)	n ended in December 2023. overty in 2024 with its own t, free energy saving coach eviously, the focus was on us is mainly on structural omeowners to insulate their .000.
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ea Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used and white goods appliance exchange) could apply for In addition, new policies for the coming years are a saving energy by applying small energy-saving re- improvements such as making poorly insulated hom Nationally, a subsidy has been made available to als homes with a low energy label (E, F and G) and a hor Stakeholders involved in the implementation of the a Municipality of Heerlen, Housing Corporations, One-	ich municipality. This plar ne fight against energy p the energy box (E-wallet or it until December 2024 already being drafted. Pr neasures. Now the focu es more sustainable. to motivate low-income he buse value of up to €219, action (implementation) -Stop-Shop	n ended in December 2023. overty in 2024 with its own t, free energy saving coach eviously, the focus was on us is mainly on structural omeowners to insulate their .000.
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ear Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used and white goods appliance exchange) could apply for In addition, new policies for the coming years are a saving energy by applying small energy-saving r improvements such as making poorly insulated hom Nationally, a subsidy has been made available to als homes with a low energy label (E, F and G) and a hor Stakeholders involved in the implementation of the ar Municipality of Heerlen, Housing Corporations, One- Period of implementation	ich municipality. This plar ne fight against energy p the energy box (E-wallet or it until December 2024 already being drafted. Pr neasures. Now the focu es more sustainable. to motivate low-income he buse value of up to \in 219, action (implementation) •Stop-Shop 2022 and ongoing	n ended in December 2023. overty in 2024 with its own t, free energy saving coach eviously, the focus was on us is mainly on structural pmeowners to insulate their .000.
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ear Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used and white goods appliance exchange) could apply for In addition, new policies for the coming years are a saving energy by applying small energy-saving r improvements such as making poorly insulated hom Nationally, a subsidy has been made available to als homes with a low energy label (E, F and G) and a hor Stakeholders involved in the implementation of the ar Municipality of Heerlen, Housing Corporations, One- Period of implementation Budget and resources Government grants such as Housing Fund (VHF) ar for this purpose. No funds from the WELLBASED pro-	ich municipality. This plar ne fight against energy p the energy box (E-walled or it until December 2024 already being drafted. Pr measures. Now the focu es more sustainable. o motivate low-income he buse value of up to €219, action (implementation) -Stop-Shop 2022 and ongoing and Specific Allowance Mu oject have been utilised.	n ended in December 2023. overty in 2024 with its own t, free energy saving coach eviously, the focus was on us is mainly on structural omeowners to insulate their 000.
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ear Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used and white goods appliance exchange) could apply for In addition, new policies for the coming years are a saving energy by applying small energy-saving r improvements such as making poorly insulated hom Nationally, a subsidy has been made available to als homes with a low energy label (E, F and G) and a hor Stakeholders involved in the implementation of the ar Municipality of Heerlen, Housing Corporations, One- Period of implementation Budget and resources Government grants such as Housing Fund (VHF) ar for this purpose. No funds from the WELLBASED pro- Risks that have occurred and what mitigation measu	ach municipality. This plar the fight against energy p the energy box (E-walled or it until December 2024 already being drafted. Pr measures. Now the focu es more sustainable. to motivate low-income he buse value of up to €219, action (implementation) -Stop-Shop 2022 and ongoing and Specific Allowance Mu oject have been utilised. ures have been taken, oth	n ended in December 2023. overty in 2024 with its own t, free energy saving coach eviously, the focus was on us is mainly on structural omeowners to insulate their 000. unicipality (SPUK) are used her relevant actions:
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ear Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used and white goods appliance exchange) could apply for In addition, new policies for the coming years are a saving energy by applying small energy-saving r improvements such as making poorly insulated hom Nationally, a subsidy has been made available to als homes with a low energy label (E, F and G) and a hor Stakeholders involved in the implementation of the ar Municipality of Heerlen, Housing Corporations, One- Period of implementation Budget and resources Government grants such as Housing Fund (VHF) ar for this purpose. No funds from the WELLBASED pro- Risks that have occurred Political and municipal actions can impact engine	ich municipality. This plar ne fight against energy p the energy box (E-walled or it until December 2024 already being drafted. Pr measures. Now the focu es more sustainable. o motivate low-income he buse value of up to €219, action (implementation) -Stop-Shop 2022 and ongoing and Specific Allowance Mu oject have been utilised. ures have been taken, oth Risk materialization a	n ended in December 2023. overty in 2024 with its own t, free energy saving coach eviously, the focus was on us is mainly on structural omeowners to insulate their 000. unicipality (SPUK) are used her relevant actions: nd what has been done
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ear Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used and white goods appliance exchange) could apply for In addition, new policies for the coming years are a saving energy by applying small energy-saving r improvements such as making poorly insulated hom Nationally, a subsidy has been made available to als homes with a low energy label (E, F and G) and a hor Stakeholders involved in the implementation of the ar Municipality of Heerlen, Housing Corporations, One- Period of implementation Budget and resources Government grants such as Housing Fund (VHF) ar for this purpose. No funds from the WELLBASED pr Risks that have occurred Political and municipal actions can impact ongoing projects	ach municipality. This plar the fight against energy p the energy box (E-wallet or it until December 2024 already being drafted. Pr measures. Now the focu es more sustainable. to motivate low-income he buse value of up to €219, action (implementation) -Stop-Shop 2022 and ongoing and Specific Allowance Mu oject have been utilised. ures have been taken, oth Risk materialization an Try to adapt to the new	n ended in December 2023. overty in 2024 with its own t, free energy saving coach eviously, the focus was on us is mainly on structural omeowners to insulate their 000. unicipality (SPUK) are used her relevant actions: nd what has been done implemented action.
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ear Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used and white goods appliance exchange) could apply for In addition, new policies for the coming years are a saving energy by applying small energy-saving r improvements such as making poorly insulated hom Nationally, a subsidy has been made available to als homes with a low energy label (E, F and G) and a hor Stakeholders involved in the implementation of the ar Municipality of Heerlen, Housing Corporations, One- Period of implementation Budget and resources Government grants such as Housing Fund (VHF) ar for this purpose. No funds from the WELLBASED pro- Risks that have occurred Political and municipal actions can impact ongoing projects. Key Performance Indicators	ich municipality. This plar ne fight against energy p the energy box (E-walled or it until December 2024 already being drafted. Pr measures. Now the foct es more sustainable. o motivate low-income he buse value of up to €219, action (implementation) -Stop-Shop 2022 and ongoing and Specific Allowance Mu oject have been utilised. ures have been taken, oth Risk materialization an Try to adapt to the new	n ended in December 2023. overty in 2024 with its own t, free energy saving coach eviously, the focus was on us is mainly on structural omeowners to insulate their 000. unicipality (SPUK) are used her relevant actions: nd what has been done implemented action.
In 2022, all the municipalities together drew up an inter of energy poverty. Everything was tailor-made for ear Heerlen municipality, however, chose to continue the policy action plan. Residents who had not yet used and white goods appliance exchange) could apply for In addition, new policies for the coming years are a saving energy by applying small energy-saving r improvements such as making poorly insulated hom Nationally, a subsidy has been made available to als homes with a low energy label (E, F and G) and a hor Stakeholders involved in the implementation of the ar Municipality of Heerlen, Housing Corporations, One- Period of implementation Budget and resources Government grants such as Housing Fund (VHF) ar for this purpose. No funds from the WELLBASED pro- Risks that have occurred and what mitigation measu List of risks that have occurred Political and municipal actions can impact ongoing projects. Key Performance Indicators KPI DESCRIPTION	ich municipality. This plar ne fight against energy p the energy box (E-walled or it until December 2024 already being drafted. Pr measures. Now the foct es more sustainable. o motivate low-income he buse value of up to €219, action (implementation) -Stop-Shop 2022 and ongoing and Specific Allowance Mu oject have been utilised. ures have been taken, oth Risk materialization a Try to adapt to the new PLANNED KEY	n ended in December 2023. overty in 2024 with its own t, free energy saving coach eviously, the focus was on us is mainly on structural omeowners to insulate their 000. unicipality (SPUK) are used her relevant actions: nd what has been done implemented action.





Organizing meetings with the sustainability program and policy makers.	2 meetings	1 meeting every month with program and policy makers
Lessons learned and any replication tips for similar	orojects	
In times of crisis, adaptability and flexibility are crupolicies, ensuring they can be implemented swiftly a	ucial. This also applies to	o the development of new

8.4.11 Action 9. Local stakeholders network

collaboration

ACTION 9 Local stakeholders network collaboration

State of play of the action

□ Finished

Other

Energy poverty is a top priority on the political agenda in the Parkstad city region. To effectively address this issue, a cooperation agreement has been signed among all the municipalities in the region and relevant stakeholders. This partnership is now known as The Alliance for Energy Justice.

Dates of the action

Oktober 2022 and stil on going

Place where the action takes place

□ Home of the participants

□ Health center (please specify)

- □ Municipal buildings
- Other (please specify): Alliance

Describe intervention

Promote strong local network partnerships and impact links with other stakeholders seeking to combat energy poverty and promote sustainable energy measures. At the last meeting on 9 July 2024, some members of the Alliance signed the EU Manifesto Wellbased Healthy Homes..

Stakeholders involved in the implementation of the action (implementation)

Municipality of Heerlen, Housing Corporations, Housing Society, (Community Building and Guidance), Social Organizations, GGD, Trade Union FNV, One-Stop-Shop, Parkstad city region, food banks, Salvation Army Netherlands, etc.

Period of implementation

Dec 2022 and ongoing.

Budget and resources

From the Wellbased budget, €1,369.97 was spent on these meetings

Risks that <u>have occurred</u> and what mitigation measures have been taken, other relevant actions:





In an alliance involving many parties, there is a risk that some may withdraw. Therefore, it is crucial for the alliance to meet regularly and ensure that actions are visible and impactful. The alliance should not merely function as a consultative structure.

-			
List of risks that have occurred		Risk materialization a	nd what has been done
The need to combat energy pove risk is that partners and politician urgent topics to deal with.	rty still exists; The ns also have other	Regularly inform each other about the progress of planned actions/projects, and especially evaluate them afterwards. In this way, politicians and partners continue to pay attention to energy poverty.	
Key Performance Indicators			
KPI	DESCRIPTION	PLANNED KEY OUTCOME	MAIN RESULTS OF THE IMPLEMENTATION
Meetings with collaborating s board members (Kick-off, interim closing, comple	tion and closing)	Min 3 meetings	3 meetings, and will continued after feb 2025.
Lessons learned and any replica	tion tips for similar p	projects	
	<i>c</i> ,		

Bringing together such a large group of people, companies, and municipalities requires considerable time and effort. To manage this process, someone from outside WELLBASED has been appointed to organize these meetings.

8.4.12 Physical interventions

For Heerlen no physical interventions have taken place in WELLBASED participants. For a large group of Welbased participants living in social housing, housing associations are responsible for such interventions. A small group of homeowners are responsible for taking physical interventions themselves.

8.4.13 Action Participants could track the T/H/CO2

ACTION Participants could follow the T/H/CO2

Describe intervention

Participants in the intervention group have all received devices with which they can measure their T/H/CO2 at homes. These devices automatically transmit the measured data online to Chipmunk and they transfer it to the WELLBASED platform.

Participants can log in to their own dashboard and view all of their own measurements in real time.

Dates of the action

June 2023- September 2024

Provide information on how participants can track T/H/CO2 readings





Device LED display			
Dashboard van Smart City Monitor			
□ Information provided by the pilot's team, specify how:			
Local Provider Dashboard, specify h	OW:		
In other ways, indicate the ways in which:			
All data collected by these devices can be viewed	by people via their own dashboard of Chipmunk to		
which they can log in.			
Stakeholders involved in the implementation of	the action (implementation)		
Chipmunk			
Chipmunk delivered the equipment to all participat	nts, hung up the device to measure the air quality in		
the house and made sure that the explanation of a	Il other devices (pulse oximeter, peak flow meter and		
blood pressure meter) was available. It was also e	explained to the participants that they could log in to		
their own dashboard in order to view their own mea	surements in real time.		
Period of implementation	June 2023 – September 2024		
	People can continue to access their data online from		
	the moment they set up the devices until the end of		
	the project.		
Risks that <u>have occurred</u> and what mitigation m	neasures have been taken, other relevant actions:		
List of risks that have occurred	Risk materialization and what has been done		
Devices that fail or people disconnecting/disabling	Information was received via ASIDEES about the		
the devices (for any reason).	devices that no longer collected data. This		
information was also shared with Chipmunk so t			
Kau Daufaura an an Indiantana	they could resolve this issue.		
KPI DESCRIPTION	MAIN RESULTS OF THE IMPLEMENTATION		
141 participants received a device that allows them	This device hangs on the wall of the participants		
to measure the air quality in their homes.	and automatically transmits the measured		
	mormation (online) to Chipmunk. Participants had		
	they could log in		
they could log in.			
Lessons learned and any replication tips for sin	iniai projecta		

Chipmunk collect all measured information and send it to the WELLBASED platform. The chosen set-up made it difficult for the municipality to manage this project properly and to respond adequately in the event of problems. We were dependent on other parties within the project for this.

Making agreements with the other parties on which we depended could have been better, so that we could also have steered and responded better to problems.







8.4.14 Lessons learned during pilot preparation and implementation actions

Lessons learned	
Key challenges during the planning, preparation and execution phases	In the implementation of WELLBASED project where health is in the focus of the project, a critical insight was learned regarding the limitations of municipal capacities. The City of Heerlen found itself ill-equipped to handle the specialized research components of the project, particularly the collection and processing of the health measurements and questionnaire data from the participants and for submission to the WELLBASED platform. This necessitated the engagement of an external entity, a process that consumed considerable time and resources. Key takeaway: Recognizing what we can't do in-house early on and bringing in outside help for specialized tasks can make future projects run much smoother and save time and resources.
Difficulties in stakeholder involvement, resource allocation	Due to our lack of expertise in the matter, we had to use a company that performed data collection and support us during the research (Chipmunk). This decision, while necessary, consumed a large portion of our budget.
Data collection	The collection of the data is completely digital and while efficient, was entirely managed by the contracted external entity. This arrangement resulted in limited visibility into the accumulated data for the municipal team.
Obstacles encountered in the effective implementation of interventions	The intervention within the municipality of Heerlen was to organize the health cafes where we gave the participants of the intervention group information about various important topics such as saving energy, keeping the air in the house good and your health faced low attendance. This suggests a need to rethink our approach to community health education events to boost participation in future initiatives.
Key conclusions and actionable recommendations for future projects based on lessons learned	Our experience underscores the importance of critically evaluating internal capabilities before committing to such projects. The challenges encountered have roots from two key factors: insufficient in-house expertise and inadequate technical part. This situation led to complications in project execution. Moving forward, we would advise to conduct thorough assessments of both knowledge-based and technical readiness prior to project commitment. Such evaluations can prevent resource strain and ensure more effective project delivery.





Provide advice on how to
maintain the long-term benefits
of the interventions after the
completion of the projectContinue to communicate with the newly created network (the
alliance of energy justice).Start a new project that is in line with the results of WELLBASED.

8.4.15 Success story

1) A Couple's Tale of Energy Poverty Challenges:

"At the beginning of the study, we received tips from an energy coach," says wife.. "We then started looking at our own possibilities and started living differently as a result. Just setting the heating to 18 degrees doesn't work for us because of husbands health. Due to its limitations, it needs a constant pleasant temperature. But heating the central heating to 21 or 22 degrees is no longer affordable. We now know how to heat our homes more effectively and, above all, how important ventilation is for this. Dry air heats up faster. That's why the doors open opposite each other four times a day. You can see the humidity dropping. We have also heard that many people use a kerosene heater to heat the living room. But, because of the emissions of such a heater, the CO2 meter would immediately turn red. We use an electric heater and an extra electric blanket and fleece blanket for the husband. It's healthier, safer and cheaper. We now have our energy costs under control, although we do use more electricity than gas. We will continue to pay attention to that. Soon our house will be made more sustainable; We will certainly see the results of this. What impact does all this have on our health? We don't know yet. In any case, our blood pressure and heart rate are stable."

2) Health cafes have contributed to health awareness and positive energy use

This meeting was organized by Chipmunk and the municipality. The meetings were mainly aimed at sharing joint experiences, energy advice and the progress of the project with each other in a nice warm atmosphere. Some visitors often indicated in the discussion during the meeting that they did not know who they could turn to when it came to insulating their rental home. Now with the professional information they have received, they can often take simple measures themselves and which are not always expensive. A while after the last meeting, a visitor indicated that the electricity bill had fallen positively.

3) Participants and their own GPs appreciate the contact with Chipmunk's GP

Chipmunk employs its own general practitioner. She contacts the participants when the retrieved medical data shows strong deviations from the normal. During this conversation, she advises the participants to contact their own GP. This has happened 25 times in the course of the project. His own GP was pleased with the referral of his patient. Because the patient showed the dashboard to his GP, he was given access to the patient's measurements over the past period within the WELLBASED project. As a result, the GP had more information than usual to make a diagnosis.

4) Social partners in Heerlen also sign the Manifesto Welbased Healthy Homes





The Welbased Healthy Homes manifesto has not only been signed by various municipalities in Europe, but also by five (5) non-government related partners of the municipality of Heerlen. These were the housing corporations Weller and Vincio Wonen, the Salvation Army, trade union FNV and social organization Alcander. During a meeting of the Alliance of Energy Justice on July 9, 2024, the signatures of these partners were put on the manifesto. In doing so, they support the importance of healthy living for people with low incomes.

5) Collaboration between Chipmunk Heath and the housing associations after Wellbased

Chipmunk has become better known through its participation in Wellbased and has been approached by a number of housing associations to implement accessible indoor climate monitoring on a large scale in their homes. Currently, these are the corporations Weller, Wonen Zuid, Woonpunt and Krijtland. The measurements do lead to awareness, but appear to be insufficient to influence the behavior of tenants. That is why they started developing a coaching program together with the corporations and the GGD: the Chipmunk Home Coach. This is based on the exercise and lifestyle programs that are offered to the healthcare sector. These are intended to bring about behavioural change among the residents, to improve the indoor climate and, above all, to prevent moisture problems. It works with challenges that participants have to complete over a certain period of time, for example in the area of ventilation.

Images, photos



 Couple now living more consciously (newspaper article, Sept 2023):
 "We have started to live differently because of this project"



 Participants in the Healthcafés have started to think differently about their energy consumption. Explanations from professionals about insulation and ventilation have helped them to do so.



Funded by the Horizon 2020 Framework Programme of the European Union

WELLBASED



3) 25 participants had contact with Chipmunk's GP because the collected readings were very different from the normal. People were often advised to contact their own GP. Appreciation for this was therefore high



1Alderman C. Gelderblom on the necessity of the Manifesto

Mrs. Simons of the Salvation Army Netherlands signed the Manifesto

4) Social partners of the municipality connected in the Alliance of Energy Justice also sign the manifesto



8.5 Óbuda

Energy poverty in Hungary is a complex and multifaceted issue that has gained increasing attention from researchers and policymakers in recent years. Studies indicate that some of the Hungarian population experiences difficulties in accessing adequate and affordable energy services. Socioeconomic factors such as income levels and housing conditions play significant roles in determining vulnerability to energy poverty, with low-income households and those living in substandard housing being particularly at risk. The Hungarian government has implemented various measures to address energy poverty, including social subsidies, price controls, and energy efficiency programs.

The following table provides a summary of the intervention actions implemented in the OBUDA pilot, including the number of participants in actions performed, the timing of interventions providing an overview of the pilot's efforts to address energy poverty at the household level during WELLBASED project.

Intervention actions:	Number of actions performed	Timing of interventions
Energy audits	82 participants / 70 homes	October 2022 – January 2024
Energy efficiency trainings	90 participants / 14 events	December 2022 – November 2023
Household management trainings	63 participants / 6 events	May 2023 – March 2024
Health improving actions	14 participants / 1 event	November 2022 – November 2022
Attitude forming programs	2 events	April 2023 – May 2024
Community building programs	68 attendees / 2 events	September 2022 – June 2024
Energy modernization of households	78 participants / 67 appliances	August 2023 – July 2024
Engagement of stakeholders	3 events	December 2022 – June 2024
Arrears management	none	n/a
Installing smart metres	none	n/a

8.5.1 **Reflections on the recruitment process**

How different factors influenced the recruitment process

The recruitment process was not only affected by factors directly related to the project, but also by several circumstances out of the project team's control (eg. COVID, political uncertainty), therefore the process required greater investment of resources than previously expected. The recruitment difficulties were mainly hindered by a mistrust of the municipality and the authorities in general.

In order to overcome this obstacle and build trust, the Obuda team sent personal letters to the home addresses potential participants, made phone calls, ensured weekly visibility to the target population, and organized a community events to raise awareness.





Participants interested in the project were worried about the commitment and the effort needed to participate. Once enrolled in the project, people felt overwhelmed when they first took a glance at the baseline questionnaire and felt unmotivated to carry on. This was reported to the responsible project partners, who responded helpfully to the task and willingly shortened the questionnaire, which was favourable for the participants.

Some people felt that the monthly health data collection was burdensome; for others considered it more like an incentive. Because of the obligations, mainly the elderly population felt that their participation would not take up too much of their time and that the project was compatible with their daily tasks.

However, the elderly population was concerned about their physical ability to participate. Because health data collection, energy efficiency trainings and household management trainings all took place outside of their homes, the participation of people with disabilities and of poor health conditions were jeopardized. To address this issue, health visitors volunteered to visit the homes of the disabled to facilitate their participation. Despite these efforts, not all participants were able to attend every event due to scheduling conflicts or illness.

To encourage participation and recognize the effort required to provide data and fulfil obligations, incentives were offered during the recruitment process. Participants in the intervention group received grocery vouchers worth 5000 HUF (12.68 EUR) for each completed questionnaire; and as one of the intervention was providing a modern, energy-efficient household appliance. While the control group members did not receive household appliances, they were given grocery vouchers for each questionnaire they filled out.

Any differences in how the Intervention and Control Groups were approached		
Intervention Group	Control Group	

Both groups were approached the same way during the recruitment process and were asked if they could commit to the obligations in the intervention group. If people were concerned about the effort or the ability, but were interested in the project, they were offered the possibility to take part as a control group member. As for incentives, all participants received grocery vouchers of the same worth, while intervention group participants were also offered a more energy efficient household appliance in return for their efforts.

Gender consideration				
Recruitment	The target population consists of vastly more women than men, and a significant			
	amount of these women are elderly people living alone or mothers in single-parer			
	families. In Hungary, there is still a significant difference between the incomes of			
	men and women, as well as different circumstances regarding responsibilities			





	around the household, in the upbringing of children, caring for elderly relatives, as well as certainty of a job.
Interventions	Women's attendance to the actions has been facilitated – primarily by providing children care services. In general communication and day-to-day interaction, gender stereotyping and women's participation have been ensured and supported by the presence of female operators, experts and social workers. This was desired as participants were expected to share personal information about their lives, their health and well-being, and female participants felt more comfortable sharing these with other women.
Analysis (if applicable)	n/a
Other relevant considerations	n/a

8.5.2 Interventions in pilot



8.5.3 Action 1. Energy audits







The aim of the energy audit was to assess the participants' home's energy situation related to energy use, consumption, appliances outlining all the specifics. This helped the participants identify where their homes were losing energy and what steps they were able to take in order to improve energy efficiency. The auditor was an external expert, who – together with colleagues at the Óbuda team – fixed an appointment with participants by phone, than visited each household. After personally examining the dwellings, a data sheet was completed by the external expert, together with the participants. Thanks to the energy audits, not only pieces of advice could be given to each participant on energy efficiency, but even the energy modernization intervention could be tailored to respond to the actual needs of each participant.

Energy audits and features of dwellings	The energy audit investigated the following elements regarding the features of dwellings: type and condition of cooking appliance, material and condition of doors and windows, condition of electrical network. It also measured the number of windows and number of heaters per room.
Energy audits and household behaviour (energy efficiency)	The energy audit investigated the following elements regarding the household behaviour and energy efficiency of dwellings: type, energy classification (efficiency) and condition of household appliances (fridge, stove, oven, washing machine, dishwasher, microwave oven, radiator, boiler, air conditioner). The auditor also examined household behaviour regarding the use of LED bulb, wind relief, insulation, dehumidification, cooling, shielding.
Energy audits and what advice were given to the participants	The energy auditor gave advice to participants that they could apply themselves, were in the household's control, responsibility and budget. Beforehand, the auditor studied the household behaviour and energy efficiency measures and would give advice on applying the following measures if needed: use of LED bulbs, wind relief, use of window insulating film or heat reflective film, tips on dehumidifying, installation of a device for cooling, window replacement, installation of shading (eg. shutters). He also suggested which of the participant's household appliances would be worthwhile to replace with a more energy-efficient device within the framework of the project.

4







Dates of the action

10/10/2022, 11/10/2022, 12/10/2022, 13/10/2022, 15/11/2022, 03/05/2023, 10/05/2023, 17/01/2024, 18/01/2024

Stakeholders involved during the implementation of the action (Implementation)

Óbuda-Békásmegyer Urban Development Plc.

Óbuda Asset Management Ltd.

External experts (CardWare Ltd., GOMELI Ltd.)

Budget and resources

The implementation of the energy audits cost 5,431.87 euros, which included the fee of the external experts who carried out the audit. It was financed from the Wellbased project sources.

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what have been done		
n/a	n/a		
Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY	
	RESULT	RESULTS	
Number of participants audited	146	82	

Lessons learned and any replication tips for similar projects

The intervention was successful, participants were enthusiastic and were glad to learn more about their devices and consumption. Several of them have reported making changes in their homes and household behaviour based on the advice given by the auditor. The questionnaire was more of a data sheet completed by the external expert, together with the participant, therefore it was less of a burden on participants.

8.5.4 Action 2. Arrears management

ACTION 2 Arrears management

Status of overall action

Finished

🛛 Other

In order to deal with and resolve the existing problem and to prevent arrears and debt spiral, the colleagues at the Family Counselling and Child Protection Centre will develop a professional program aiming to help those affected and offer efficient solution for this problem. Participants will be informed about this opportunity from time to time, mainly in the first half of the intervention period. The service was available throughout the project period and beyond. Colleagues at the Family Counselling and Child Protection Centre have developed a professional program aiming to help those affected and offer an efficient solution for the problem. Participants have been informed about the opportunity and were reminded throughout the project period, however, there was no indication of demand.

Dates of the action	n/a	
Place where the action takes place		





Participants' home			
□ Health Centre (please, specify)			
Municipality premises			
⊠ Other (please, specify): n/a			
Describe intervention			
n/a			
Stakeholders involved during the implementation	n of the action (Implem	entation)	
n/a			
Period covered of the implementation	n/a		
Budget and resources			
n/a			
Risks that took place and what mitigation measured	ures were taken, other r	elevant actions:	
List of risks that have taken place	Risk materialization a	nd what have been done	
RISK 1. Participants do not participate at the counselling, even in need	Participants were informed about the opportunity and were reminded about it throughout the project period. It is most likely that participants affected by debt did not feel comfortable to share their struggle with others and preferred not to open up about the issue. Colleagues at the Family Counselling and Child Protection Centre put a lot of emphasis on deepening trust. A lack of interest might have been due to the fact that those in need of counseling were already clients of the Family Counseling and Child Protection Centre.		
Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY RESULT	IMPLEMENTATION KEY RESULTS	
Number of counselings held	10	0	
Lessons learned and any replication tips for similar projects			
It is most likely that participants affected by debt did not feel comfortable to share their struggle with			

others and preferred not to open up about the issue. Because the project already collected an amount of sensitive data of each participant, and they were not interested in one-on-one consultations, advice on arrears management was built into the knowledge shared in the framework of household management trainings. This way, participants affected by debt could get an idea about solutions and were assured that if they needed any help in solving such issues, they had someone to turn to.

8.5.5 Action 3. Energy efficiency trainings

ACTION 3 Energy efficiency trainings

Status of overall action



WELLBASED

M Einishad			
Dates of the action	06/12/2022, 15/12/2022,	, 06/02/2023, 09/02/2023,	
	07/03/2023, 09/03/2023	3, 04/04/2023, 06/04/2023,	
	04/05/2023, 25/05/2023,	, 21/09/2023, 19/10/2023,	
	14/11/2023, 29/11/2023		
Place where the action takes place			
Participants' home			
Health Centre (please, specify)			
Municipality premises			
🛛 Other (please, specify): Ezüsthegy Library near	the home of the participar	nts	
Describe intervention			
Energy efficiency trainings were organized for all households involved in the project by the GreenDependent NGO. The NGO has much professional experience in the field and developed a complex and interactive material specifically for the participants. A training consisted of two parts, organized in separate events, however, it was possible to attend several events if someone was interested. Apart from interactive presentations, participants could borrow a consumption meter to take home and study the consumption of each of their household appliances. They could check their knowledge gained at the trainings in a playful way, using quizzes and trivias. After the last session, a collection of knowledge was issued and given to participants for further use. The training of key actors took place at a separate event, a complex training material was developed specifically for key actors. Stakeholders involved during the implementation of the action (Implementation)			
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After the first event, it became clear that it would be most useful in terms of effective knowledge transfer if the training was divided into two parts, so that the participants could take part actively on one occasion, for a shorter period of time, but with greater intensity. The playful knowledge check encouraged the participants to pay attention, and the printed knowledge collection was also enjoyed later on. Before the training, it was important to assess what types of homes the participants live in, so that training material could be compiled that responds to the needs of those involved.

8.5.6 Action 4. Household management training

ACTION 4 Household management training		
Status of overall action		
⊠ Finished		
□ Other		
Dates of the action	09/05/2023, 16/05/2023, 28/09/2023, 05/10/2023,	
	29/11/2023, 14/03/2024	
Place where the action takes place		
Participants' home		
□ Health Centre (please, specify)		
Municipality premises		
Other (please, specify): Ezüsthegy Library near the homes of the participants		
Describe intervention		

Household management trainings were organized for all households involved in the project by the Family Counselling and Child Protection Centre. Initially, events would have been organized for smaller groups, however, after the first energy efficiency trainings, it became clear that bigger groups are also manageable in the framework of such trainings. Participants received a professional program developed by the Child Protection Centre earlier, which proved to be interactive and efficient. They already had much professional experience in this field, as well as an active relationship with most tenants and had already built confidence with them. The trainings shared knowledge regarding utility bills, utility service providers, implementation, debt collection, blocking, arrears management, consumption meters and energy.

Participants were divided into two groups, based on whether they live in their apartment as owners or tenants, which made it possible to focus on specific problems. The goal was to help families, and especially elderly people, navigate the complex maze of bills. Thus preventing the spiral that can lead to the accumulation of debt.

During the trainings, it became clear that the biggest problem is that people do not read their official letters carefully. It was necessary to draw people's attention to the fact that no matter what stage they are in regarding debt collection or management, there are always solutions and someone to turn to for help. Stakeholders involved during the implementation of the action (Implementation)





Óbuda Family Counselling and Child Protection Centre			
Period covered of the implementation	May 2023 – March 2024		
Budget and resources			
The total cost of the intervention was 2,009.25	euros, which included th	he staff costs of the LTP	
ÓCSTGYVK. The task was financed from the Well	based project.		
Risks that took place and what mitigation meas	ures were taken, other re	elevant actions:	
List of risks that have taken place	Risk materialization a	nd what have been done	
RISK 1. Participants do not consider themselves to	The organizers developed a training material that		
be struggling with a financial problem that would	focuses on everyday tasks and issues that are		
have made the program relevant for them.	relevant for anyone managing a household.		
RISK 2. Participants are not comfortable managing administrative tasks or official affairs, therefore lack	ging Simple language was used at trainings, material lack was developed specifically to ease understanding		
enthusiasm to participate at the event.	enthusiasm to participate at the event. and discuss basic information important for		
	household management. Questions and feedback		
	were asked frequently to check that the material		
	was understood.		
Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY	
	RESULT	RESULTS	
Number of trainings held	Min 2	4	
Number of participants expected	120	63	

Lessons learned and any replication tips for similar projects

Initially, events were to be organized for smaller groups, however, after the first energy efficiency trainings, it became clear that bigger groups are also manageable in the framework of such trainings. Participants were divided into two groups, based on whether they live in their apartment as owners or tenants, which made it possible to focus on specific problems. The participants took part in the events with moderate enthusiasm, there could be several reasons for this: 1. they do not consider themselves to be struggling with a financial problem that would have made the program relevant for them, 2. they are not comfortable managing administrative tasks or official affairs.

8.5.7 Action 5. Health improving actions

19/11/2022







Health Centre (please, specify) Szent Margit Clinic, Csobánka tér building near the participants' homes

□ Municipality premises

 \Box Other (please, specify):

Describe intervention

In order to improve the participants' state of health significantly, apart from monthly collection of health data, participants received a health screening and general examinations to map their health status. Health screening covered the following main areas: urological screening; cardiac screening (ECG, blood pressure measurement, risk assessment); arteriographic examination; oral screening; visual acuity test; mole screening; CO measurement; bone density test; In-Body body composition measurement; nutrition counselling, suitable physiotherapy sessions. The event took place on a weekend in November in order to make sure the date is available to as many interested participants as possible.

Stakeholders involved during the implementation of the action (Implementation)

Szent Margit Outpatient Health Service

Period covered of the implementation

November 2022

Budget and resources

The total cost of the intervention was 2,575.26 euros which included the fee of health care workers carrying out the health screening day. The task was financed from the Wellbased project.

Number of participants screened	100	14	
	RESULT	RESULTS	
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY	
Key Performance Indicators			
n/a	n/a		
List of risks that have taken place	Risk materialization and what have been done		
Risks that took place and what mitigation measures were taken, other relevant actions:			

Lessons learned and any replication tips for similar projects

The health screening took place at the beginning of the intervention period, partly serving recruitment purposes. Given the very early stage of the project, the program reached only a few. Despite the fact that when the program was announced, it was clearly and unambiguously communicated what free screenings were available, some of the participants hoped that they could also benefit from higher-cost medical interventions that were not part of the program (e.g. dental interventions). Later on, in addition to the monthly health data collections, participants felt that additional screening would feel like a burden, therefore due to the lack of interest, no more screening events were conducted.

8.5.8 Action 6. Attitude forming programs

ACTION 6 Attitude forming programs

Status of overall action



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X Finished			
	00/04/0000 04/05/0004		
Dates of the action	22/04/2023, 04/05/2024		
Place where the action takes place			
Participants' home			
□ Health Centre (please, specify)			
Municipality premises			
Other (please, specify): Family Community Space	e near the homes of the	participants	
Describe intervention			
The first attitude-forming event was held in April 2023, which was connected with the district's Green Days. Sustainability-focused organizations were present to exhibit their activities. Óbuda-Békásmegyer Municipality showed up as an organizer, presenting the Wellbased project, drawing attention to energy poverty, which gave the opportunity to conduct a professional discussion at the climate protection and sustainability professional forum organized within the framework of the program. The second attitude-forming event was held specifically for the project participants, on a weekend in May 2024. At the program, participants could take part in an interactive energy efficiency quiz game, try out the crime prevention escape room, and attend a local history presentation. The winners of the quiz received a smart weather station as a gift. Stakeholders involved during the implementation of the action (Implementation)			
Period covered of the implementation	April 2023 – May 2024		
Budget and resources			
The resources for deploying this action were the ones used at Óbuda-Békásmegyer Urban Development Plc. It was strengthened by Wellbased project sources from the budget line for communications costs, as materials were prepared for communication and dissemination purposes.			
Risks that took place and what mitigation measures were taken, other relevant actions:			
List of risks that have taken place	Risk materialization and what have been done		
RISK 1. Participants will not be interested enough	The programs were held free of charge, at flexible		
to take part in attitude forming programs. dates, near the homes of participants.			
KPI DESCRIPTION	RESULT	RESULTS	
Number of events held	2	2	
Lessons learned and any replication tips for similar projects			
The attitude-forming event organized specifically for project participants did not sufficiently attract people's attention, so the number of visitors was significantly lower than expected. Based on experience.			

it ensures greater interest and access if individual programs are connected with other events with a similar theme.





8.5.9 Action 7. Community building programs

ACTION 7 Community building programs			
Status of overall action			
⊠ Finished			
□ Other			
Dates of the action	24/09/2022, 01/06/2024		
Place where the action takes place			
Participants' home			
□ Health Centre (please, specify)			
Municipality premises			
I Other (please, specify): Budapest Zoo and Bota	nical Garden, Budapest G	rand Circus	
Describe intervention			
Two significant community building events were he	eld, once at the beginning	of the intervention period,	
and once at the end of it. The first event was a trip t	to the Budapest Zoo and E	Botanical Garden, aiming at	
attitude forming and community building, as well as	recruiting at the same time	e. The location was chosen	
because it places great emphasis on sustainability	and attitude formation.		
The second trip was organized to the Budapest G	rand Circus, which was v	ery successful and helped	
building community as well as strengthening local in	dentity.		
Stakeholders involved during the implementation	on of the action (Impleme	entation)	
Óbuda-Békásmegyer Urban Development Plc.			
Period covered of the implementation September 2022 – June 2024			
Budget and resources			
The resources for deploying this action were the one	es used at Óbuda-Békásm	negyer Urban Development	
Plc. It was strengthened by Wellbased project source	ces from the budget line for	r communications costs, as	
materials were prepared for communication and dis	semination purposes.		
Risks that took place and what mitigation meas	ures were taken, other re	elevant actions:	
List of risks that have taken place	Risk materialization and what have been done		
n/a	n/a		
Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY	
	RESULT	RESULTS	
Number of events held	Min 2 community	2	
	building programmes		
Number of participants expected	120	68	
Lessons learned and any replication tips for similar projects			
Before selecting the programs, the needs of the participants were also assessed. The success of the			
events was ensured by the fact that locations were determined as destinations that were suitable even			







for family programs, and participants could be joined by their children or grandchildren. It was also very important to organize the events on the weekend so that people interested with families and with jobs could also attend.

8.5.10 Action 8. Installing smart metres

The planned intervention consisting of the installation of smart meters to monitor energy consumption levels could not be implemented. This deviation from the project plan was due to unforeseen macroeconomic factors, namely the high inflation rates which made procurement of the required smart metering equipment financially unviable within the allocated budget constraints. Obuda's program consisted of multiple interventions, therefore the research study was considered not to be affected significantly by the deviation.

8.5.11 Action 9. Energy modernization of households

ACTION 9 Energy modernization of househo	lds
Status of overall action	
⊠ Finished	
□ Other	
Dates of the action	17/08/2023, 07/09/2023, 08/12/2023, 12/02/2024,
	13/02/2024, 14/02/2024, 16/02/2024, 21/02/2024,
	27/03/2024, 28/03/2024, 03/04/2024, 06/04/2024,
	08/04/2024, 27/06/2024, 08/07/2024
Place where the action takes place	
Participants' home	
□ Health Centre (please, specify)	
Municipality premises	
□ Other (please, specify):	

Describe intervention

As a first step, households were examined by the energy auditor and tenants were asked for more insight, before deciding about the exact manners and instruments to modernize the households. There was a basic, common method or device for all participants, instead, the intervention was tailored to the needs of each household. New household appliances and equipment could be chosen to treating the problem of inadequate cooling-heating, ventilation, damp, replacement of broken, old or inefficient household appliance. The energy auditor discussed their advice with the participant on what kind of instrument would be most useful to help with energy efficiency or energy poverty, then the exact models were chosen by the Obuda team and again discussed with the participants before procurement. New appliances included fridges, washing machines, dishwashers, stoves, ovens, air cleaners, air conditioners, as well as new front doors.



participants

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Are physical interventions accompanied by training and advice about how best to use the new facilities

Participants receive energy efficiency trainings and household management trainings. Both activities provide advice on how to use energy more efficiently, as well as advice on how to use certain appliances, including the energy efficient household appliances they receive during the course of the project.

Stakeholders involved during the implementation of the action (Implementation)

Óbuda-Békásmegyer Urban Development Plc.

Obuda Asset Management Ltd.

Period covered of the implementation	August 2023 – July 2024
Budget and resources	

The implementation of the action cost a total of 62,305.59 euros, which included the price of the household appliances, the delivery and the installation when applicable. These costs were financed from the Wellbased project. Some further costs directly related to the action (delivery of replacement device, removal of previous device) were financed from Municipal sources.

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization a	nd what have been done	
RISK 1. Financial or technical problems or delays regarding the implementation of activity.	Continuous direct contact and clear communication with all participants and involved institutions prevent problems and to manage unexpected issues on time.		
RISK 2. Some participants lost enthusiasm to participate in the project after receiving their household appliances.	Items were handed out continuously, not at one given data, during or at the end of the intervention period, in order to prevent drop-outs significantly affecting data collection. Participants were encouraged to keep taking part in the project by incentives for filling in questionnaires and by organizing a community building program.		
Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY	
	RESULT	RESULTS	
Number of participants receiving energy	146	78	

modernization

energy

Lessons learned and any replication tips for similar projects

receiving

In the event of a similar intervention, it would be very important to draw strict boundaries. It was necessary to designate the basis for determining which household appliance each household will receive, and that the participants were also involved in the selection - open, understandable communication is also inevitable during the energy audit and before the procurement of the appliances. It is essential to determine the range of household appliances that can be chosen, as well as the maximum value of a machine that can be purchased, in order to avoid and fairly handle any disputes that may arise.





8.5.12 Action 10. Engagement of stakeholders

ACTION 10 Engagement of stakeholders

Status of overall action

Other

Dates of the action

01/12/2022, 22/04/2023, 20/06/2024

Place where the action takes place

□ Participants' home

□ Health Centre (please, specify)

Municipality premises

□ Other (please, specify):

Describe intervention

The first local event was held in December 2022, combined with an energy forum, and brought the issue of energy poverty to the attention of stakeholders. Local stakeholders, especially representatives of residential buildings, were interested in learning more about the issue and possible solutions.

The Green Days of Óbuda provided a platform for organizations dealing with climate protection and sustainability to get to know and discuss the issue of energy poverty in depth. In addition to local organizations, decision-makers also had the opportunity to dialogue.

The third event was connected with the Hackathon in June 2024. Besides university students participating in the competition, university lecturers working in various fields, specialists dealing with urban development and urban research, NGOs dealing with sustainability also took part in the event and engaged in a dialogue with each other to discuss opinions and develop strategies to manage heat waves in urban areas, considering health impact and ensuring residents' well-being.

Stakeholders involved during the implementation of the action (Implementation)

Óbuda-Békásmegyer Urban Development Plc.

local and professional stakeholders

Period covered of the implementation December 2022 – June 2024

Budget and resources

The resources for deploying this action were the ones used at Óbuda-Békásmegyer Urban Development Plc. It was strengthened by Wellbased project sources from the budget line for communications costs, as materials were prepared for communication and dissemination purposes.

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what have been done	
RISK 1. Stakeholders were not interested enough	The conferences were held at flexible dates,	
to take part in the conference.	combined with other events related to the topic.	
Key Performance Indicators		





KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY	
	RESULT	RESULTS	
Number of conferences for local stakeholders	3	3	
Number of conferences for professional	2	2	
stakeholders			
Lessons learned and any replication tips for similar projects			
The events reached more stakeholders and ensured greater participation by being connected to other			

events with a similar theme (e.g. Hackathon).

8.5.13 Lessons learned during pilots preparation and implementation actions

Lessons learned		
Main challenges faced during the planning, preparation phase and implementation phase	The most significant challenge was recruitment. During the process, several different strategies were deployed, and significantly more resources than expected were invested in recruitment. The process was significantly facilitated by physical visibility and contact, as well as shortening the length of the questionnaires. Originally, as an incentive, cash was offered, however, due to the preference of the participants, incentives were finally changed to a voucher.	
	There were also deviations from the project plan due to unforeseen macroeconomic factors, namely the high inflation rates which made procurement of equipment difficult or even financially unviable within the allocated budget constraints.	
Difficulties in stakeholder engagement, resource allocation	The most resource-consuming task was recruitment, which required significantly more resources than expected. The motivation for stakeholders to participate was not very high, therefore events reached more stakeholders and ensured greater participation by being connected to other events with a similar theme (e.g. Hackathon).	
Data collection	Once the circumstances were clarified and the questionnaire was finalized, the data collection went efficiently and smoothly.	




Data treatment agreements were inevitable between the parties involved and it was important to have all documents ready in place otherwise the data could have been delayed.

Working together with health workers ensured that the collected health data is valid, reliable and comparable. Involving personnel in the implementation turned out to be beneficial from the point of view that a significant number of the participants were single pensioners, who were particularly happy that they had the opportunity to socialize in this form as well.

In the case of regular data collection, it turned to be more useful to compile shorter, more to the point questionnaires. More sensitive questions may be worth investigating during a qualitative survey.

There was a need for a school/work certificate to be issued for participants (to justify being late for obligations due to Wellbased intervention), as well as for the participant to receive support in case of a high/low value of health measurements and to receive a recommendation to visit their GP. The needs have been met.

Obstacles encountered during the actual Due to the recruitment difficulties, it became necessary to expand the recruitment circle to the outskirts of the target area, which meant that households away from the focal point were left

without T/H/CO2 devices.

Regarding the energy modernization of households, it would be very important to draw strict boundaries. It was necessary to designate the basis for determining which household appliance each household will receive, and that the participants were also involved in the selection open, understandable communication was also inevitable during the energy audit and before the procurement of the appliances. It was essential to





	determine the range of household appliances that can be chosen, as well as the maximum value of a machine that can be purchased, in order to avoid and fairly handle any disputes that may arise.
Key takeaways, and actionable recommendations for future projects based on the lessons learned	Most interventions are more successful and the number of people reached is greater when events are organized in conjunction with other programs. Open, clear communication has a positive effect on both the process and the satisfaction of the participants.
Offer advice on ensuring on the maintaining	Continuous contact and repeated events are key to
long-term benefits of the interventions after the project's finalisation	maintaining long-term benefits, as well as any change in behaviour induced by the project (eg. energy efficient household appliances, attitude- forming events, energy efficiency and household management trainings, health screenings). The participants had the opportunity to establish contact with several actors (organizers and other participants) during the project period, which can be decisive even after the end of the project period.

8.5.14 Success story

The implementation of energy audits was a success, as participants were enthusiastic and were glad to learn more about their devices and consumption. Several of them have reported making changes in their homes and household behaviour based on the advice given by the auditor. The questionnaire was more of a data sheet completed by the external expert, together with the participant, therefore it was less of a burden on participants. The audit also useful from the point of view that it helped to determine in which way energy modernization can be effectively customized for each household.

Energy efficiency trainings were also productive. Apart from interactive presentations, participants could borrow a consumption meter to take home and study the consumption of each of their household appliances. They could check their knowledge gained at the trainings in a playful way, using quizzes and trivials. After the last session, a collection of knowledge was issued and given to participants for further use. Several of the participants have reported making changes in their homes and household behaviour based on the advice given at the trainings.

Monthly health measurements were implemented efficiently and smoothly, with participants showing up enthusiastically. The implementation of each event was generally carried out by three health workers at the same time, and if necessary, more personnel participated in order to ensure a smooth operation. The health workers ensured a smooth operation, and even offered help with filling in sleep quality questionnaires if



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needed. Working together with health workers ensured that the collected health data is valid, reliable and comparable. Involving personnel in the implementation turned out to be beneficial from the point of view that a significant number of the participants were single pensioners, who were particularly happy that they had the opportunity to socialize in this form as well.

Participants were happy to join community building events as well. Before selecting the programs, the needs of the participants were assessed. The success of the events was ensured by the fact that locations were determined as destinations that were suitable even for family programs, and participants could be joined by their children or grandchildren. It was also very important to organize the events on the weekend so that people interested with families and with jobs could also attend.



Energy efficiency trainings



19







8.6 Valencia

Energy poverty in Valencia, Spain presents a significant challenge, affecting a substantial portion of the population. The underlying factors contributing to energy poverty in Valencia include socio-economic vulnerabilities, poor housing quality, and issues related to housing size and location². The interplay of these factors underscores the complex nature of energy poverty in the region and the need for multifaceted interventions.

The following table provides a summary of the intervention actions implemented in the Valencia pilot, including the number of participants in actions performed, the timing of interventions providing an overview of the pilot's efforts to address energy poverty at the household level during WELLBASED project.

Intervention actions:	Number of actions performed	Timing of interventions (start from the first participant and the end of intervention with the last participant that receives it)
Socio-energy audits	132 households (145 participants) The number of households is higher than the 130-goal due to the dropouts during the recruitment period. Two dropouts could be covered with 2 new households as the recruitment period was not over.	From 1 st September 2022 until 30 th June 2023
Energy efficiency advice including bill optimization	132 households (145 participants)	From 1 September 2022 until 30 June 2023

² Sujar-Cost A, Lorenzo-Sáez E, Arce VL, Aliaga EC. Geospatial Analysis of the Distribution of Energy Poverty in the Residential Sector in the Valencian Community. Buildings. 2024; 14(9):2651. https://doi.org/10.3390/buildings14092651





	The number of households is higher than the 130-goal due to the dropouts during the recruitment period. Two dropouts could be covered with 2 new households as the recruitment period was not over.	
Delivery and installation on energy efficiency kit	132 households (145 participants) The number of households is higher than the 130-goal due to the dropouts during the recruitment period. Two dropouts could be covered with 2 new households as the recruitment period was not over.	From 1 September 2022 until 30 June 2023
Group meetings about energy efficiency & health through the "Citizen School for the Right to Energy"	25 workshops	From 2 nd February 2023 until 23 rd May 2024
Access to the home sensor values	120 participants	Showing the house sensor results during the M6 visit From 1 st August 2023 until 31 st January 2024
Delivery of seasonal fruits and vegetables' basket	238 baskets	From 11 th July 2023 until 30 th June 2024
Express renovation by SOCAIRE project	7 households	From 14 th February 2024 until 15 th March 2024
Handyman service by OSS	2 households	From 9 th April 2024 until 17 th June 2024

8.6.1 **Reflections on the recruitment process**

How different factors influenced the recruitment process

The recruitment process for Wellbased project was rather complex due to its target population, which are vulnerable households. People suffering energy poverty, and other difficulties, are hard to approach due to different factors: confidence, lack of time to commit to the project, emergencies, debt hinder, exposing themselves to others, shame or guilty feelings. This is why the recruitment process had to be very "human", meaning prioritising on site visits and face-to-face meetings and appointments with potential participants.

To do so, the Energy Coaches they did a mapping on the forehand with all the potential entities that worked with vulnerable households and its contact person. Once the recruitment phase began, they



Intervention Group



started to contact the responsible people and arranging meetings with them to explain the aim of the project and the benefits that users could get by participating (understanding of bills, energy efficiency kit, training, support to apply to the Social Bonus discount, health monitoring, personalised advice...). Also, many questions regarding privacy and data protection of participants raised. Then, the entity would organise a meeting together with the Energy Coaches and the potential participants so they could give an in-depth explanation about the project and answer all questions on site (commitment, benefits, follow up, questionnaires, privacy...). Furthermore, this appointment was also an opportunity for both parts to meet and start building this confidence relationship with the Energy Coaches as they would visit the participants on their house, which is very private space and not open for everyone.

Finally, it was key to let the participants know that its participation was extremely valuable to learn about the effects of energy poverty on people's health and make them feel valuable, even more like a part of a family, than part of a project. There would not be Wellbased project without them.

Thus, having intermediaries and in-between actors, such as social workers, doctors, NGOs staff, OSS workers – even a friend or a family member – to validate the project and its benefits was key to build a solid relationship of trust between the Energy Coaches and the participants. They would also be very approachable by phone and Whatsapp to facilitate the communication with the potential participants and reach the target goal of recruitment.

Control Group

Any differences in how the Intervention and Control Groups were approach	ed
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exchange information and refer potential participants through the Social Workers.

- Meetings with NGO's, charity entities and other associations' representatives to explain the project and its benefits to get their validation. After that, they would make an appointment together with their users and the Wellbased coaches so they could explain the project, address questions and, finally, recruit the participants.
- Word of mouth between participants and their families, friends and others.

To recruit participants, building confidence was key. This is why an "in between person" of their trust (social worker, NGO volunteer, a friend...) was needed between them and the energy couches. Also, going on site to the appointments, being approachable by phone and Whatsapp and adaptable to each entity and household needs.

Gender consideration		
Recruitment	The gender approach was always considered during the recruitment process. Several associations working specifically with women were contacted such as those supporting single mothers, gender violence victims, migrant women, elder women centres, and those promoting women labour integration and employability. At the end of the recruitment process there were more women participants' than men (102 women and 43 men taking also into consideration the dropouts)	
Interventions	The energy couches adapt their intervention to the participant's needs, concerns and profile. The needs and the use of the house and appliances are different between large families with both parents, single mothers, migrant women, elder women alone etc. On the first case, the energy couches encourage the whole family to be present during the intervention (specially women as usually they take care of the housework) and adapt the energy audit to those different uses and routines, stressing the importance of energy efficiency to save. When it comes to single mothers and women alone, the WB coaches adapt their intervention to analyse their profile, explain how to apply to the social bonus discount while providing tricks to reduce bills considering their routines (kids, working hours, elder women feeling alone).	







Analysis (if applicable)	The difference between women and men participating is evidence on how women are more likely to suffer energy poverty and its effects. However, we can also state that in some cases (specially families with both parents), women are the ones who show up at the appointments at NGOs and associations for recruitment (exposing themselves as energy poor, asking for help, signing the consent form with their data etc.) and, once the WB coaches arrive to the house, the husband is also present and even more active than women, especially during the installation of the energy efficiency kit; while women are more participative when it comes to use of appliances and the social bonus discount (domestic economy and house tasks).
Other relevant considerations	Another relevant consideration might be the fact that usually women have shown up more to the energy & health workshops than men. These workshops have been key to address energy savings, efficiency, domestic economy and healthcare. However, many participants have also considered them as a space for sharing experiences, relieve daily stress and mutual caring – again exposing themselves as vulnerable households. The content, approach and dynamics of the workshops have been constantly reviewed and adapted according to the evolution of attendance - majority of women and few elder men - and the interests, needs and concerns of the participants assisting. In addition, to engage participants during the project, two baskets of seasonal fruits and vegetables were delivered to each household along with the organisation of two healthy recipes workshops. This had very positive feedback among women- participants, worried about their kids' diet. It was also a chance to exchange tips and recipes cooked with those products within the rest of the group.



WELLBASED

8.6.2 Interventions in pilot



8.6.3 Action 1. Socio-energy audits

ACTION 1. Socio-energy audits

Status of overall action

I Finished

 \Box Other

The participant's home energy situation related to energy use was assessed by understanding their consumption, appliances, the way they consume energy, etc. outlining all the specifics.

This helped the participant to identify where his/her home is losing energy and what steps he/she can take to improve energy efficiency. The audit will not only deal with energy aspects, but also with health-related aspects of the individual, how the situation of the household is affecting the health and the wellbeing of the person and what to do to improve the situation. The starting point for deepen into the participants' current situation is to pass a comprehensive questionnaire, which will help us design a tailored intervention, which responds to his/her actual needs. The questionnaire includes questions about personal, socio-economic, comfort, energy use, sources and appliances data.

This will allow to intervene on some of the detected needs and on low energy efficiency and poor housing conditions.

Two baskets of seasonal fruits and vegetables were delivered to each household participating.





Socio-energy audits and features of dwellings	During the socio-energy audit, the Energy Coaches would review the house features and conditions together with the participant, carefully listening to them and their concerns: temperature during summer and winter, presence of mould or damp, house orientation and situation (neighbourhood, type of flat, building floor) possibility of cross- ventilation, quality of materials, insulation, windows etc.
	Once checked, they would provide personalised advice to improve comfort at home namely:
	In summer, ventilate during the first and last hours of the day. Use of blinds and awnings at certain times, to avoid direct sunlight depending on house orientation (north-south, east-west). Prioritise the use of fans or ceiling fans over the air conditioning. Try to make cross ventilation to improve air quality. In windows with direct sunlight and no blinds, use of thermal stickers
	In winter, use of weather stripes in old windows and doors to avoid air filtrations and make the heating more efficient. Isolate heated rooms as much as possible.
	In case of mould and dump, use of de-humidifiers, try to ventilate and dry the area as much as possible. This applies specially to neighbourhoods located close to the seaside, which suffer higher humidity levels. The use of certain types of domestic plants can also help to lower the temperature and absorb humidity.
Socio-energy audits and household behaviour	Regarding participant's behaviour, the Energy Coaches would ask in advance about the use of the house, routines and daily lives and practices. Thus, together with the composition and profile of the household (large family, single mothers, elder people living alone, multi-generation, bad physical condition or disabilities etc.) can give the energy coaches an accurate idea of what advice they can offer. The idea is to change behaviour and practices progressively rather than drastically so participants can adapt and strengthen those new behaviours and implement new ones as a challenge to make the transition to a more efficient use of energy. Also, it is not about radically changing their use of the house but to adapt the advice and improve the efficiency to the house as well as their comfort, while lowering their bills. Some of the advice considered:





	In place measurement of phantom-use of energy together with the participant to make them aware of appliances consuming even when they are not using them. Same with all the house stand-by (TV, microwave, AC, coffee machine). At this point, the Energy Coaches would make an estimation combining the phantom consumption and the energy price to let the participant now how much money represent those standby on their bill. Finally, they would place the power strip and remind them to switch them off when not using them.
	Ventilate the house accordingly to their house orientation and season of the year to improve in-house temperature and quality of air.
	Check their type of tariff and market (regulated or free). In case they are on the regulated market (price fluctuates over daytime and certain hours are cheaper), show them where they can check the updated price (mobile apps, webpages) or provide them a leaflet with the general tendency (weekends are cheaper, during the week from 14h to 18h are the most convenient times). Encourage participants to check, when possible, the energy price and adapt their activities with high consumption (laundry, dishwasher, heating water) to the cheapest hours. In case of free market, check if they also have cheaper hours or flat rate to adapt those activities. Check illumination and bulbs and change them into LED when possible.
Socio-energy audits and what advice were given to the participants	Participants were mostly concerned about heating and cooling the house in a cheaper and efficient way. The Energy Coaches reviewed the appliances they had to do so and measure their consumption and efficiency possibilities. Once done, they would normally recommend using or buying, in winter, an oil-based electric heater due to its efficiency, while in summer, using fans or ceiling fans over the AC. In case they would need the AC, regulate the temperature and use the dehumidifier program as it consumes very little compared to the rest of the programmes.
	When it comes to using the washing machine, the Energy Coaches reviewed the machine and its possibilities. Once done, they advised, when possible (clothes not really dirty), using preferably colder water, lower the spinning and use short-time programmes to lower the energy consumption. Also, try to dry the clothes outside as much as possible to





	avoid the use of dryer. In Valencia, it rains very little, so it is possible to hang and dry them outsideAnother efficiency advice was to adapt the temperature of the water heater for showers. Participants can save energy and money at the end of the month with this simple trick. In summer people do not usually
	way to save energy. The use of the time programmer on this appliance is also convenient and can be adaptable to the "cheaper hours" if they are on the regulated market.
	The time programmer can also be used on the WiFi router to make it off when going to bed, or when leaving the house for some time (working hours, weekends).
	The final aim is to reduce the energy consumption little by little with these easy tricks and tips, but all combined can have a huge impact on bills at the end of the month without losing comfort at home.
Socio-energy audits and what advice were given to the participants with the note what would be within the household's control, responsibility and budget to do.	Indeed, there is a key difference between the possibilities of the participants who own the house, and those who are rented. The owners of rented flats are not always willing to renovate, improve insulation or change house appliances into more efficient ones. This is a problem that is beyond the control of the participant.
	The Energy Coaches are aware of that and provide advice taking this into consideration, always trying to ensure that those tricks and actions can be carried out by everyone. The list above is a good example of actions and good practices that can be made under the participant's control.
	In addition, when the participant is the owner of the house, Energy Coaches encourage them to ask for an appointment at the municipal OSS to check if they are eligible for any state aid or refunding for renovating windows, doors or improving insulation.
Socio-energy audits and any other relevant details e.g. methods, intervention area, challenges, replication tips,	As previously mentioned, participants are located across different districts in Valencia. Those that are closer to the sea suffer humidity





and so on that you consider important.	more, so the Energy Coaches stress their advice focusing on ventilation, damp and mould prevention.
	As mentioned, they also considered the type of household, profile, type of market, use of the house, house tenancy
	Regarding the challenges and replication there are two remarkable questions. First one, not all participants are keen to switch off the WiFi router at night, especially those who suffer from anxiety, depression or insomnia. They claim that they need to be online much of their time, even at night when they can't sleep. Thus, the time programmer not always can be placed there. The Energy Coaches look for alternatives of savings with LED bulbs and power-stripes to compensate (stand-by, water heater, microwave).
	Older people living alone tend to have the TV connected many hours per day (sometimes even 12-14 hours) even if they are not watching it. They claim that they like to hear people talking or having noises or music not to feel that alone. This has an impact in their bills, rising it up. The Energy Coaches advise them to have a radio instead, as it has a similar effect and consumes way less than a TV. This action had positive feedback from the participants.
	Finally, we have found that some people, especially migrants coming from Africa, have additional freezers in their house. This is because they buy food when it is cheap (or buy it in African supermarkets and its already frozen) and they store it there for later. These fridges have a huge energy consumption and can be a significant part of their bill. The Energy Coaches have measured the consumption and show participants that, even if they saved money in food, they ended up paying more because of the electricity bill. If people still are willing to have it at home, at least they learn how much of the consumption and how much money on their bill is and take the decision with all the information. In most cases, the Energy Coaches have also advice on smaller and more efficient ones to try to save energy and money on the mid and long term without them changing this representative cultural practice.





Dates of the action

The Energy Audit was carried out during the first visit to the household, during M18-M27 of the project, from September 22 to June 23

Stakeholders involved during the implementation of the action (Implementation)

The Energy Coaches visiting the households. Worth mentioning the role of the NGOs, Social Services, OSS Workers etc. To help validate the project and reach the participants.

Budget and

Two superior technicians (the Energy Coaches) were hired by VCE to recruit and implement the pilot actions. The cost-effectiveness reported in WP5 for this action is approximately 23.454,72€. This includes staff cost, materials and leaflets delivered during the audit (Social Bonus leaflet, good practices at home, energy efficiency at home, general directions for regulated market and prices) and transportation costs for 132 households across the city for the two technicians.

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what have been done
Risk 1. Participants do not understand the technical advice.	Up to date, most of the participants appear to be very interested and motivated within the energy field, especially regarding bills and home efficiency. Participants prepare their questions and concerns in advance, making the first working session very profitable and really focused on the participant needs. Even so, the energy coaches give their recommendations in a very user-friendly language, complementing their suggestions with daily life examples and experiences, adapted to each house, conditions and profile.
Risk 2. Participants cannot answer questions about energy sources and appliances with precision	Normally, most of the participants know what their resources are (gas and electricity grid, bottled butane gas). The trickiest question found is to identify which energy tariff they have: (1) the regulated market (price and conditions established by the Government) or (2) a contract with a free market supplier (with free competition and prices). This is a crucial point as participants can only apply to financial support and reductions in the regulated market. Therefore, in case they do not know it, the energy couches shall identify it - by checking the latest bills and the company features - at the very





	beginning of the working session in order to adapt their advice and, eventually, help them to apply to these tariffs price reduction.		
Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY RESULT	IMPLEMENTATION KEY RESULTS	
Number of households audited. 1 socio energy audit per participant.	128	132 households, 145 participants. As explained, there were two dropouts before the recruitment process ended so we could compensate those by reaching two more households interested in participating. All 132 were audited.	
Number of guides and training materials delivered	128	132 households, 145 participants. All 132 households received the guides and training materials.	

Lessons learned and any replication tips for similar projects

The best communication channels are phone calls and instant messages, such as WhatsApp.

When targeting vulnerable population, confidence is key. Houses are a private space, therefore, building confidence with the participant is key.

The Energy Couches visiting the households must have a special sensitivity to connect with people: create a safe space, no judging, active listening, adapting to each person and situation, adapt their advice and intervention, adapt their language, caring for their needs, concerns and questions. The energy audit takes time and effort. This should be considered when planning similar visits.

To be able to provide more help during the energy audits, the energy coaches would like to have a solid protocol to help people to fix broken appliances, with a handyman service or similar.

8.6.4 Action 2. Debt support

ACTION 2 Debt support	
Status of overall action	
I Finished	
□ Other	
Dates of the action	M18-M27 mainly but doing a follow up with all participants that need it during their whole





	participation. From September 22 to June 23 and	
Occasional support during follow up.		
M Participante' home		
Other (please, specify):		
Describe debt support interventions The Valencia pilot has not provided direct financial help for debt support. However, the Energy Coaches, when reviewing and optimizing the household's bills, have asked about delays in payments or accumulated debts. If that's the case, they explained the participant how to proceed according to their situation – normally starting by paying the oldest bills to avoid surcharges or interests due to delays. They have also explained them that they have the right to establish a payment plan with the energy supplier, as well as their rights to avoid cuts and how to proceed if those come. The Municipal Social Services has budget allocated to pay debts, so the Energy Coaches have encouraged participants with serious debts to ask for an appointment there to explain their situation. Also, the Municipal OSS staff can help them further with the communication with the energy supplier. We have developed a protocol to refer participants to the OSS as well as an agreement with the Social		
See D3.3 for more information		
Stakeholders involved during the implementat	ion of the action (Implementation)	
Social Services and the one stop shop		
Period covered of the implementation	Mainly during the Bill Optimization action during the first intervention, so <i>M18-M27</i> . <i>However, participants have asked questions about debts during their whole participation.</i> September 22 to June 23.	
Risks that took place and what mitigation measures were taken, other relevant actions:		
List of risks that have taken place	Risk materialization and what have been done	
RISK 1. Participants debts hinder their ability to take control over energy tariffs in the shor term.	 Participants with debts have more difficulties to apply to the Social Bonus discount, which is currently the best tool to fight against energy poverty. In this point, payment plans become key. Communication with Social Services has also been key as the Energy Coaches could explain their situation and encourage people to make an appointment. They have also explained them their energy rights in case they suffer illegal cuts and how to act if this happens. 	
RISK 2. Participants have already received deb support from Social Services	t Some participants, especially those coming from Social Services, that have already received debt support do not need to ask for it again as their situation was improved with the previous	





	intervention. In case worsens, the Energy C and refer them again to depending on their nee	e the debt continues or baches analyse the situation b Social Services or the OSS eds.
Key Performance Indicators		
KPI DESCRIPTION	PLANNED KEY RESULT	IMPLEMENTATION KEY RESULTS
Number of households supported in their debt problems, i.e., receiving some kind of subsidy or negotiating debt splitting (100% of households coming with debt problems)	64 (50%)	Normally people in the Valencian pilot tend to prioritise their bill payments and cut from other expenses (food, leisure) Just a very few participants came to Wellbased with serious debt problems (5 or more bills delayed with severe financial problems). They were referred form Social Services (2), a Charity entity (1) and the OSS (2). They were advised properly (payment plans, Social Bonus, Social Services support, Energy Rights) and referred to the OSS and the Social Services workers for further follow up on their case. This has been possible thanks to the protocol and agreement with both entities.
Lessons learned and any replication tips for sim	llar projects	

Having a solid protocol to refer cases to relevant entities (Social Services, Municipal OSS, others) Inform people about their energy rights.



Funded by the Horizon 2020 Framework Programme of the European Union



Having informative materials and guides on how to claim their rights and how to proceed in case of debts and power cuts.

Having a complete consent form that foresees communication and mediation with energy suppliers and other municipal services.

8.6.5 Action 3. Bill optimization

ACTION 3 Bill optimization	
Status of overall action	
⊠ Finished	
□ Other	
Dates of the action	M18-M27 The action 3 was done in the first visit with each of the participants. However, Energy Coaches would review bills and address questions and concerns on demand during their whole participation in Wellbased.
Place where the action takes place	
Participants' home	
Health Centre (please, specify)	
Municipality premises	
\Box Other (please, specify):	
Describe intervention	

The Bill Optimization has been a key action to empower participants, lower their bills and adapt their tariffs to their needs, profiles and use of the house.

The Energy Coaches would ask participants, on the forehand, to collect their latest bills and send them so they could review them in advance. During the house visit, the Energy Coaches would have an interview with the participant about the use of the house, routines and daily life to have an accurate overview about their energy needs. Once done, the Energy Coaches will explain the participant the structure and concepts of their bill to understand it better. Then, they will review together:

- Type of market and tariffs (regulated or free) and advice on how to save depending on the market.
- Possibility to apply to the Social Bonus discount (40%, 65%, or 80%). If the household matches
 the requirements, they review together the documents that participants' need to gather for the
 application. Most of the people that were entitled to have the Social Bonus were not aware of
 that and received it thanks to the intervention.
- Hired power and its suitability. This is because many participants have a contracted power way higher than their needs. Thus, the Energy Coaches will review the power peaks and house consumption tendencies in the distributor site to recommend a more adjusted power according to their needs. Each Kw lowered can mean up to 50€ of savings each year.





- In case the participant cannot apply to the Social Bonus and wants to remain in the free market, the Energy Coaches would check if the price for the Kw/h that they are paying is a fair rate according to the market tendencies. To do so, they would teach the participant to use the CNMC website to compare offers and tariffs. This is a public and objective tool from the Ministry that contains useful information about updated offers and plans for electricity and gas supplies. It also makes a comparison between both markets that can be very valuable to understand the evolution of both.
- Additional services hired but not knowing like different insurances, advanced version of the mobile app etc. These services are very easy to detect as they are charged with a higher VAT rate than energy. Those can mean even 20€ or 30€ additional euros on the bill. Most participants were unaware that they were paying them and, therefore, never had used these insurances. The Energy Coaches looked for the contract specifications and recommended checking whether if their house insurance cover the same features so they can unsubscribe to avoid duplicities. In other cases, those insurances were not suitable for the participant (i.e. covered appliances purchased less than 5 years ago) or they even did not have the basic mobile app (case of elder people). These additional services are forbidden for people on the regulated market and Social Bonus beneficiaries. The Energy Coaches informed the participants about this and their rights to unsubscribe to these services.
- In case the participant has a tariff with the 3 periods of energy use; "valley" (cheap), plain (medium) and peak (more expensive), explain the differences between them and show households where they can check the energy price (website, apps) to empower them and help them to take control of their consumption. Additional materials were delivered as well.

Refer to D3.3

Stakeholders involved during the implementation of the action (Implementation)

NA

Period covered of the implementation

September 22 – June 23 (30th June end recruitment period)

Budget and resources

Two superior technicians (the Energy Coaches) were hired by VCE to implement the pilot actions. The Bill Optimization was one of them, carried out during the first house intervention. As per WP5 report, the cost of this action, under Wellbased budget, the cost was of 26755,84€. This includes staff cost, materials for understanding bills, like the Social Bonus leaflet, explanations and personalized advice and transportation costs for 132 households across the city for the two technicians.

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what have been done	
RISK 1. Participants do not retain information	Bills contain many different elements of tariffication	
about structure of energy bills.	and are not easy to understand. In addition, each	
	energy supplier has its own bill template so they	





	cannot be easily compa- take their time to intervention, adapting la advice to the participa- knowledge. This has bee and concepts reinforce monthly meetings and w bill, games).	ared. The Energy Coaches explain bills during the anguage, explanations and ant's profile and previous en complemented with time ed during follow-up and rorkshops (understand your
RISK 2. Bills are already optimized and/or the	For those cases, the int	ervention focuses on good
savings potential by bill optimization is not too	efficiency habits and	the installation of the
big	efficiency kit.	
Key Performance Indicators		
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY
	RESULT	RESULTS
Number of bills optimized	128	132allparticipantsreceivedthebilloptimizationintervention.Thistakesintoconsiderationthetwodropoutsduringrecruitment period.
Number of supporting materials delivered	128	132 all participants received the training materials

Lessons learned and any replication tips for similar projects

This is one of the most powerful aspects of the intervention, helpful for participants as it can have an immediate impact on their monthly expenses on energy.

Careful explanations are provided so participants have the appropriate basic skills to keep good contract conditions over time.

Have the bills of the forehand allows to save time during the house visit. Once optimized it is extremely useful to ask for the next bills do a follow up to check if participants' have managed to lower their bills (Social Bonus, removal of additional services, abusive rates...).

Adapt language and advice to each profile, house usage and needs.

Contact via phone or WhatsApp to address questions post-intervention or do a follow up has had very positive feedback among participants.

Reinforce concepts through workshops.







8.6.6 Action 4. Citizen school of Right to Energy:

Regular community

meetings:

"Esmorzars/Berenars Energètics"

ACTION 4 Citizen school of Right to Energy: Regular community meetings: "Esmorzars/Berenars Energètics"

Status of overall action

Dates of the action

Finished

□ Other

M24-M39

Place where the action takes place

Participants' home

□ Health Centre (please, specify)

Municipality premises: Energy office

 \Box Other (please, specify):

Describe intervention

Monthly gatherings included in the "Citizen School of Right to Energy" program.

These have been informal meetings (like the "Energy Cafes" initiatives) where participants have been invited to attend at the local Energy Office once per month. The Energy Cafes were planned to occur every 2 weeks, one session in the morning and on in the afternoon to allow more people to join, but there was not enough affluence to do 2 session per month with 2 different groups, therefore it was decided to start with one session per month to avoid low attendance.

Until June 2023, only one session was held per month and from that moment it was increased to 2 session per month in order to cover the 25 sessions that were planned.

The 5 different topics have been discussed during the sessions (Domestic energy, Energy efficiency, Energy and health, Renewable energy and climate change and an Art workshop of 3 sessions).

The sessions were handle in friendly group format that also allowed to provide.

In each meeting, different experts, depending on the topic, were invited to give the contents of the sessions. Therefore, professionals from different backgrounds from Valencia Clima i Energia, Las Naves, the Energy Office, the secretary of an energy community, expert on health, artistic professionals and experts from AEIOLUZ shared their knowledge with participants and discussed with them different topics. Usually, the sessions were organized in 15-20 minutes of theoretical content and followed by a participatory methodology with the technical assistance of the hired moderated AEIOLUZ.

The artistic workshop consisted of 3 different sessions with the objective of creating an exposition made by pictures taken by and collages done by them. It was exhibited in Las Naves building during the Right to Energy week in February 2024.

During all the sessions healthy snacks and drinks were provided.





The last session was reserved to be an evaluation session to get feedback to participants and to farewell session.

*Additionally, 2 extra sessions related to healthy cooking techniques were organized thanks to the collaboration with the university of València and local food producers RECETAS.

Stakeholders involved during the implementation of the action (Implementation)

AEIOLUZ, ALIHADAS, FRACTALS, Camí de l'Horta, Les Marietes, Castellar Local Energy Community President

Period covered of the implementation Feb 23 – May 24 Budget and resources: Moderation of all the sessions and healthy snacks 6.595€ 6 Sessions of health with a health professional 1.500€ 3 Art workshops and exhibition 2.970€ (covered with internal budget of Las Naves) Evaluation session: one evaluation session at the end of the workshop series 375,1€ 2 Healthy recipes workshops with local producers: 660,85€ (paid with University of Valencia and Caixa Popular agreement) Risks that took place and what mitigation measures were taken, other relevant actions: List of risks that have taken place Risk materialization and what have been done **RISK 1.** Participants do not attend or there are Confirmation of assistance was asked in advance very few people through phone calls and WhatsApp. **RISK 2.** There is a lot of variation of attendance The team were reminding in advance and asking in every session (many in some, very few in for confirmation of participants. others) RISK 3. People (generally women) cannot Kids were invited to the sessions (2-3 kids usually attend because they have children care attended) and entertainment materials and games were provided. RISK 4. People are not open to share their own A professional facilitator with working experience in experiences similar environments ensured good participation of participants. She contributed to creating a safe space for sharing experiences. **RISK 5.** There is not enough interest among The art session was adapted to the participants participants to do the art workshop or we lack interest, with photos and other type of material so resources to do at the end of the program artistic content was created in each of the sessions. **Key Performance Indicators KPI DESCRIPTION** PLANNED IMPLEMENTATION KEY KEY RESULT RESULTS 25 25 Number of meetings organised Min. 90% 62/144 Share of participants attending meetings different participants (43%) had participated in at least workshop. 15 one





		different additional people (25%) like family, friends and neighbours came to the gatherings. This makes 76 different
		people attending and building supportive
		networks and sharing
		experiences and best practices. Kids are not
		included in the 76 people.
Number of meetings per participant	Min. 4 (ideally 10-12)	Number of attended meetings per person: 19 meetings: 1 person 16 meetings: 2 people 13 meetings: 1 person 12 meetings: 2 people 10 meetings: 2 people 9 meetings: 1 person 8 meetings: 1 person 6 meetings: 2 people 5 meetings: 2 people 5 meetings: 2 people 4 meetings: 4 people 3 meetings: 9 people 2 meetings: 8 people 1 meeting: 27 people Medium assistance: 3,7 meetings
Number of sessions with snacks delivered	Min. 12	25

Lessons learned and any replication tips for similar projects

It is important to adapt to participants needs, that's why the initial idea of group meeting every two weeks was postponed until there existed a group cohesion.

We realize that the people that attended the most the group meetings were living near to the energy office, nevertheless there were people living far that were going to the gatherings, so it is important for replication to do it in different energy offices to achieve a larger audience.

On the other hand, we realize that there were two types of profiles attending the social cafes, one very interested on the topics that was attending only those sessions that were interesting for them, typically the ones related to bill optimization and energy efficiency. And there was a different profile more





interested on the social experience, therefore having a variety of topics would allow people with different interests to attend some of the sessions.

Women attended to more workshops and more constantly than men (68% - 32%)

8.6.7 Action 5. "Citizen School of Right to Energy": Trainings for professionals on the detection of energy poverty

ACTION 5. "Citizen School of Right to Energy": Trainings for professionals on the detection of energy poverty

Status of overall action	
⊠ Finished	
□ Other	
Dates of the action	M33-M40
Place where the action takes place	
Participants' home	
☐ Health Centre (please, specify)	
Municipality premises	
☑ Other (please, specify): Online sessions were held and NGOs locations	
Describe intervention	

These trainings were oriented for professionals and adapted depending on the field of the professionals. Some sessions were held online to facilitate the attendance, and some were carried out in the venues of the professionals.

All the sessions covered a core topic, providing basic knowledge on energy poverty/vulnerability, causes and consequences, addressing especially the impact on people's physical and mental health and applying a look at the determinants of health and health inequalities, also all the available resources from the energy offices and the different initiatives in the city of València are shared with the professionals, to raise awareness of existing resources to address situations of energy poverty. In some of the sessions specific content was created and it'll be explained under the relevant group below. It also covered detection, taking into consideration which signs and questions professionals can make among their users to identify energy poverty and act consequently (protocol, general information, the role of Social Services and the Municipal OSS...).

The were 6 different groups of trainings to different professionals:

• **Red Cross** session in November 23: an online meeting was held with professionals from the Red Cross NGO, alongside with technicians from the regional ministry and the University of Valencia with an attendance of 10 people. It was explained what were shared with the professionals.





- NGO Aldeas Infantiles session on April 24: a physical meeting was carried out with professionals of the NGO at their premises with and attendance of 6 people.
- **CEACV** session on April 24: an online meeting was held with professionals from primary schools, high schools and the regional ministry of education. 10 different professionals attended the event.
- Sanitary professionals in May 24: 3 online sessions were held with the social and sanitary
 professionals, 2 sessions of 2 hours based on theoretical content and a 3rd session of 1.30 hours
 workshop session. There was an attendance of 10 people, 9 and 8 respectively. the objectives
 of this cycle of sessions are:
 - Core part (explained above).
 - \circ To provide tools to identify potential cases and thus improve assistance to people.
 - To explore possibilities for social prescription/recommendation of assets in confirmed situations of fuel poverty/vulnerability.
- NGO Jarit Asociación Civil session on June 24: a physical meeting was carried out with professionals of the NGO at their premises with an attendance of 6 people.
- Xarxa salud full day session on June 24: a physical meeting was carried out with professionals at their premises with and attendance of 8 people. The session was divided into a theoretical and a workshop to design an intervention protocol to tackle energy poverty taking into consideration the socio-ecological model.

NGOs, Medical centers, Primary and high school teachers and civil workers.

Period covered of the implementation M18-28

Budget and resources

Covered with professionals from València Clima i Energia and Las Naves

Risks that took place and what mitigation measures were taken, other relevant actions:

I	0	,	
List of risks that have taken place	e	Risk materialization a	nd what have been done
RISK 1. Participants do not u	inderstand the	A collaborative work	with professionals was
technical advice.		designed and the	contents were adapted
		accordingly to the audie	ence.
RISK 2. Poor attendance at train	ing sessions.	To prevent this all the s	sessions were planned with
		the professionals and the place for them to make	took place at a convenient it easier to attend, online or
		at their premises.	
Key Performance Indicators			
KPI	DESCRIPTION	PLANNED KEY	IMPLEMENTATION KEY
		RESULT	RESULTS
Number of courses		RESULT 12	RESULTS 6
Number of courses Number of training sessions		RESULT 12 24	RESULTS 6 9
Number of courses Number of training sessions Number of hours of training		RESULT 12 24 48	RESULTS 6 9 13.5





Number of sets of training materials	5	6 ppt materials
Number of stakeholders engaged for the	12	12
trainings		
Lessons learned and any replication tips for sim	ilar projects	
Adapt to the availability of the trainees will increase the attendance rates. Depending on the field, identify		
which kind of workshop will adapt better to the professionals' needs and availability.		
Adapt the contents to the background and expertise of the trainees as well as their field of action (elder		
people, women, kids, teens, migrants, families).		
Feedback from attendees was positive due to the contents, adaptability, debate session and the potential		
to put in place the new tools and knowledge learnt.		
Support the explanations with real case experiences	.	

Multidisciplinary debate was really enriching and contributed to complement knowledge and materials in a collaborative way.

8.6.8 Action 6. Citizen School of Right to Energy:

Pilot final event

ACTION 6. Citizen School of Right to Energy: Pilot Final Event		
Status of overall action		
Finished		
Other: postponed due to pilot extension, to be done in October 2024		
(if you checked Other, provide here your explanations and relevant details)		
Dates of the action	M38-M44	
Place where the action takes place		
Participants' home		
□ Health Centre (please, specify)		
Municipality premises		
□ Other (please, specify):		
Describe intervention		
The initial conference plan was changed to a pilot final event since we identified the need to share pilot results and experiences with the local community, including pilot participants.		

It would be a one-day session to present the results of the pilot intervention. Participants from the intervention groups, pilot collaborators' entities and people working on the field would be invited. We aim to achieve a participation of around 50 people.

In the event, pilot experience and results will be shared, as well as all the partnerships achieved through Wellbased project. Moreover, 2-5 participants will be invited to share their experiences with the audience.





A second part will be focused on the activities non related to the participants, such as the hackathon and the training to professionals.

To conclude a finger lunch will be offered to be able to share experiences and create synergies for future experiences.

Stakeholders involved during the implementation of the action (Implementation)

LNV; VCE, Red connecta, AEIOLUZ, UPV, Social Services, Energy Office, EU projects, Medical centers, NGOs, WB Participants, Schools and High schools

Period covered of the implementation	The planning and organization of the event has
M38-M44	already started and the event will take place on
	October 2024

Budget and resources

All the activities will be covered with staff working on the project except for the catering that it is estimated to have a cost of 1.500€

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what have been done				
RISK 1. Poor attendance	A powerful communication campaign will be deployed from Las Naves to reach as much people as possible (web, social networks). Also, direct invitations to project partners will be sent. WELLBASED participants (the ones already recruited) will also be invited through the available communication channels (Energy Office, monthly visits, monthly meetings, etc.).				
Key Performance Indicators					
KPI DESCRIPTION	PLANNED KEY RESULT	IMPLEMENTATION KEY RESULTS			
Number of events/talks (sessions within the event)	Min. 4	Project reporting			
Number of attendees	50	Project reporting			
Number of project partners' and related associations invited	Min. 15	Project reporting			
Number of posts in social networks	Min. 6	Project reporting			
Lessons learned and any replication tips for similar projects					
Action hasn't started yet					

8.6.9 Action 7. Delivery of energy efficiency kit

ACTION 7. Delivery of energy efficiency kit





Status of overall action		
⊠ Finished		
□ Other		
Dates of the action	M18- M27	
Place where the action takes place		
⊠ Participants' home		
☐ Health Centre (please, specify)		
Municipality premises		
☐ Other (please, specify):		
Describe intervention		

A customized energy efficiency kit has been delivered to each household from the intervention group. This kit will allow the participants to improve energy micro efficiency at home, reduce its energy bills with low cost kit.

The kit consisted of a weatherstripping to improve thermal insulation and avoid air currents in the house, installed in door and window frames, LED light bulbs to reduce lighting consumption, also improving comfort, a power strips and a timer, which allow the equipment to be disconnected during the hours that are not needed, thus avoiding phantom or "stand-by" consumption and a meter to check the energy consumptions of each appliance.

The kit was installed by the technicians and explained to the participants so they can manage and use the equipment correctly. Some participants received an extension to the kit in the visits corresponding to month 6 and 1.

*The kit has been complemented for the 2024 summer with an electric fan thanks to the collaboration with a private company. Each household has received a free fan.

Stakeholders involved during the implementation of the action (Implementation)

NA

Period covered of the implementation

During the 1st visit of each of the participants

Budget and resources





Some kit elements were a donation from different companies that wanted to contribute to the project, namely:

180 LED Bulbs

50 power strips

140 Time programmers

The rest of the kit elements bought (including weather strips and power meter) were 3653,1€

Total estimated with donations: 7983,1€ for 130 households (132 with the dropouts) - 60,5€ each kit

Two superior technicians – The Energy Coaches – were hired to implement this action: installation and explanation of the energy efficiency kit

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what has been done
RISK 1. Participants are not used to deal with technical components	Energy Coaches explained each component of the kit, explained how to use it and help the participants to install it. In the following meetings it was checked and revised with participants that everything was working properly. In addition, a video to facilitate the re-programming of the timer was recorded to facilitate it to some participants.
RISK 2. Some elements of the standard energy kit do not cover most of the needs of the participant (already has LED light bulbs, power strips)	The kit was complemented for those households that already had everything installed. Also the kit is an opportunity to understand how with basic materials a home can be more efficient and save money on the energy bills. The Energy Coaches adapted the usage and installation of the kit to each household. I case an element did not work for them, they explained it anyway in case they could use it for the future. On some occasions the participant would ask for that concrete element to be used in another participant's house. The kit has also been an opportunity to continue learning about which elements are more useful and which ones we need to add.

Key Performance Indicators





KPI DESCRIPTION	PLANNED KEY RESULT	IMPLEMENTATION KEY RESULTS	
Number of energy kits provided and/or installed (1 efficiency y kit delivered per participant)	128	132	
Number of information/explanations provided	128	132	

Lessons learned and any replication tips for similar projects

Energy kits are one of the most valued aspects from the individual interventions, as they contribute to practically understand energy efficiency concepts and for many cases also contribute to improve comfort with insulating materials.

Energy consumption meters are proved to be especially interesting for participants as they help identifying surprising energy consumptions from appliances they didn't expect. Also, it is an opportunity to lower the bill by identifying phantom use of energy and stand by consumption.

Each household needs are different and in order to satisfy them it would be a best to have customized kits, especially when it comes to LED bulbs (big, small...). Window elements were very appreciated due to its impact on keeping the house at a comfortable temperature.

Most of the participants claimed to suffer very high temperatures during summer. That's why we did efforts to complement the kit with an electric fan for the summer.

Listening participants and understanding their needs is key to adapt the kit to each house.

8.6.10 Action 8. Citizen School of Right to Energy: Citizen campaign on Right to Energy

ACTION 8

Status of overall action

Finished

□ Other

In February 2023, during the Right to Energy week, took place the first campaign to create awareness in the city regarding Energy Poverty. A campaign with virtual MUPIS (MUPIs is the acronym for Urban



Funded by the Horizon 2020 Framework Programme of the European Union



Information Point (bus stop, other advertising panels across the city). The English term is OPPI-Optical Point of Promotion and Information) was displayed in the city for that period.

Equally, a campaign in social networks was shared for the same time of the year.

In Las Naves an event "Right to Energy" with local agents working on Energy Poverty was organized to share all the initiatives and projects going on the city of València to mitigate the energy poverty.

In February 2024, during the Right to Energy week, Wellbased project and the pilot intervention were shared in the event "Right to Energy" and the exhibition created on Action 4 was exhibited for the whole month in Las Naves.





Exhibition of the photos and collages created by the participants of the Art workshop (left) and communication campaign deployed in city bus stops and public displays (right)

Dates of the action

M24 and M36

Place where the action takes place

□ Participants' home

□ Health Centre (please, specify)

Municipality premises: Las Naves venue

Other (please, specify):Adverts displayed at different places in Valencia City centre

Describe intervention





Explained above				
Stakeholders involved during the impl	ementation of the actior	(Implementation)		
Red connecta, AEIOLUZ, UPV, Social Se	ervices, Energy Office, EU	projects, NGOs, Pilot participants,		
Period covered of the implementation	Two session have been done during the Right to Energy week in February			
Budget and resources				
For the campaign 0€ as it is done digitall by LN communication team, with WB wo	y and for the design no ex king hours).	xternal personnel is needed (covered		
Risks that took place and what mitigation measures were taken, other relevant actions:				
List of risks that have taken place	Risk materialization and what have been done			
RISK 1. Advertising public space is not available in the dates we want	t Advertising in public spaces was not available for the booked dates but an alternative of digital monitors located in the city canter has been booked.			
Key Performance Indicators				
KPI DESCRIPTION	PLANNED KEY RESULT	IMPLEMENTATION KEY RESULTS		
Number of MUPIS or other advertising items	86	21		
Number of posts in Facebook	3	+3 post on Las Naves and Valencia Clima i Energia Social Networks (X, LinkedIn, Facebook, their own websites)		
Increase of website visits in the 2 weeks after the campaign	s Increase of 20% 20%			
Lessons learned and any replication tips for similar projects				
Adapting to the unexpected events is necessary for the success completion of the task.				





Also be in contact with local agents working on Energy Poverty to maximize the outcomes achieved by the project.

8.6.11 Action 9. Policy Advocacy Plan

ACTION 9 Policy Advocacy Plan			
Status of overall action			
□ Finished			
Other: under evaluation by the municipality			
Dates of the action	M23-M42		
Place where the action takes place			
Participants' home			
□ Health Centre (please, specify)			
Municipality premises			
□ Other (please, specify):			
Describe intervention			
A draft of an Energy plan to tackle energy poverty in the city of València has been created in collaboration of multiple institutions to be as complete as possible. The plan is divided into 4 categories:			
 Governance to engage with the different departments of the municipality. Prevention to explore and activate all the strategies that can be put in place to prevent the energy poverty. Correction contemplated the solutions that can be deployed to the vulnerable households. Urgency focus on the worst-case scenarios that need immediate support 			
Stakeholders involved during the implementation	on of the action (Implementation)		
Municipal services, Social Services, Static Office			







Period covered of the implementation	The first draft was presented to municipal services on April 2024, since then it has been under discussion and review.				
Budget and resources					
No needed (internal resources used)					
Risks that took place and what mitigation meas	sures were taken, other re	elevant actions:			
List of risks that have taken place	Risk materialization and what have been done				
Risk 1. Possible political change (municipal elections in May 2023) that could affect the interest for a local Energy Poverty Strategy or other political actions from local institutions	The plan will be adapted and design with the municipality so it can be implemented				
Key Performance Indicators					
KPI DESCRIPTION	PLANNED KEY RESULT	IMPLEMENTATION KEY RESULTS			
Proposal of basis for Local EP Strategy	1 proposal	1 Plan			
Incidence in EP data collection at city level	Min. 2 proposals (Statistics Office of Valencia; Infobarometer)	Included in the Plan			
Protocols generated	Min. 3 (for health professoinals, teachers and social workers)	On going			

Lessons learned and any replication tips for similar projects

Be flexible and perseverant in order to involve as many municipal agents as possible so the Plan is implemented successfully.





8.6.12 Action 10. Mapping of available and potential life-enhancing programs and initiatives







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III O <	III O <		Ш	0	<	
Place where the action takes place Participants' home Health Centre (please, specify) Municipality premises Other (please, specify): WhatsApp						
Mapping of available and potential life-enhancing programs and initiatives and share them with						
Participants so they can benefit from them.						
Stakeholders involved during the implementation of the action (Implementation)						
NA						
Period covered of the implementation The collection of the programs and initiatives start in 2023 and has been updated regularly.				tiatives started rly.		
Budget and resources						




No budget needed for this action as it was implemented by internal personnel.				
Risks that took place and what mitigation measures were taken, other relevant actions:				
List of risks that have taken place	Risk materialization and what have been done			
RISK 1. No significant opportunities are found, or those identified are not compatible with WB project in the short/mid-term.	The task has lasted for the whole duration of the project, has been updated with new initiatives and shared regularly with participants in case they can benefit from some of them.			
RISK 2. The identified initiatives cannot cover or benefit every participant of the project, due to financial, administrative or locational restrictions.	Assistance from the energy coaches is offered to help participants to process the initiatives or point them to the correct service for help.			
Key Performance Indicators				
KPI DESCRIPTION	PLANNED KEY RESULT	IMPLEMENTATION KEY RESULTS		
Number of initiatives and/or opportunities identified	3	+11 from WB Team + 10 via participants' initiative		
Number of households benefiting from them	32 (25%)	+10%		

Lessons learned and any replication tips for similar projects

Most of the participants are aware of some of the initiatives and subsidies but not from all of them, so it is good to include as many initiatives that can benefit the participants as possible (subsidies for the rent, for accessing to gods, for scholar material, etc).

The WhatsApp group is a useful tool to share links and experiences, also for participants to communicate between them and share opportunities.

8.6.13 Action 11. Participants could follow the T/H/CO2

ACTION 11. Participants could follow the T/H/CO2

Describe intervention





These new interventions has been incorporated trough the pilot. Participants have access to the sensor				
values, temperature, humidity and CO2 during the energy coaches visits.				
Also, the sensor has a light that changes colour dep	ending on the CO2 levels of the household, allowing			
the participant to ventilate to reduce the Co2 levels of	of the household.			
Dates of the action	M29-M35 During the M6 follow up intervention			
Provide information how participants could follo	w T/H/CO2 measurements			
☑ LED display of device				
Dashboard of Smart City Monitor				
Information provided by pilot's team, specify how: on the monthly meetings the energy coaches				
showed the participants the trends of the house rela	ted to the measured parameters			
□ Dashboard of local provider, specify how:				
□ Other ways, specify which ways:				
Stakeholders involved during the implementation	n of the action (Implementation)			
Damal Redes S.L				
Period covered of the implementation	M29-M35			
Risks that took place and what mitigation measured	res were taken, other relevant actions:			
List of risks that have taken place	Risk materialization and what have been done			
Risk 1. Participants do not understand the results	The energy coaches explain to the participants in			
shown	detail the graphs and the values of the parameters			
	in their home, also the range at which it is healthy to be at. They analyse the house values and share			
	adapted good practices with them to match with the			
	healthy levels of the three parameters.			
RISK 2. The sensor is not trusted by the participants	The energy coaches explained to the participants			
	what the sensor does and how so they can			
	understand that only some parameters are			
	highlight that it doesn't record any voice or image			
	The type and model of sensor was carefully			
	selected so it was small not invasive and does not			
	have any kind of screen to avoid distrust among			
	participants.			
Key Performance Indicators				
KPI DESCRIPTION	IMPLEMENTATION KEY RESULTS			
umber of devices with LED display distributed 130, one per household				
among participants				
I according to and any replication time for sime				

Lessons learned and any replication tips for similar projects





Participants change their behaviour if they are informed (or if they can see) that the CO2 levels increase above the recommended values, so it is important to have a device that shows the actual data so they can act whenever the recommended values are exceeded.

Feedback from the values and analysing together the data had really positive feedback among participants so they can understand better their homes.

8.6.14 Lessons learned during pilots preparation and implementation actions

Lessons learned	
Main challenges faced during the planning, preparation phase and implementation phase	It has been difficult to plan the resources needed and the campaigns needed to recruit such a large number of participants. The demanding frequency to collect data from participants difficult to get the information from all the participants every period due to difficulty to arrange that many meetings per month and due to the availability of participants. Overall is a high- demanding project for participants. To do regular monthly visit to do some of the questionnaires has also high demanding. Involve participants for such a long period without incentives is very challenging as the different tasks are quite demanding, therefore incentives financed from other sources are highly valuable to keep the participants engaged.
Difficulties in stakeholder engagement, resource allocation	It is important to map all the possible entities than can have a key role to identify vulnerable households. Having face-to-face meetings and appointments has proved crucial to build trust with the potential stakeholders to help in the recruitment. Having also leaflets and materials to deliver with all the identifications and logos so it helps to identify the project and its reliance.
Data collection	There have been some issues with the hired company to take the measurements as it requires an important task of planification and monitoring.





	Participants availability has made difficult to collect all the necessary data. The difficulties raised by last minute cancellations (re-programming, losing this saved time-spot)
Obstacles encountered during the actual implementation of interventions	It is important to have a good monitoring system in place to be able to track all the information of all the participants and understand the amount of data that has been recorded from them and if there is any missing data. House interventions are effort demanding and time consuming (2.30h - 3h per household) so it is important to have it into consideration for planning accordingly and offer the best intervention possible. Participant's availability and last-minute cancellations are beyond our control. In most cases, these cancellations mean losing the time spot as it is quite difficult to arrange a new appointment with other household for that spot with so little time in advance. It is important to be flexible with participants and adapt to their availability. Sending reminders the day before is also a good practice. Participants with very difficult situations or depression issues are difficult to follow up and tend to cancel visits more or even not showing up. It is important not to push them hard and be understanding with their situation. Offer them comfort and alternatives. Coordination with the company Novus (in charge of monthly health screenings and M18 questionnaire) to avoid duplicities and double monthly visits.
Key takeaways, and actionable	Planning ahead is key for success.
the lessons learned	engage with participants and make them stay to the end of the project. Staff must be approachable, good listener and caring. Also, adaptable to multiple situations and different households, profiles and needs.





	Have a tool to monitor and understand each participant stage and to also see the overall picture and trend of all participants. When recruiting vulnerable people, identify potential entities and key persons to validate the project within the potential participants. Communication via phone and Whatsapp is key to be approachable and answer questions and concerns during the duration of the project in an easy way. When making an appointment with a participant, send a written confirmation via WhatsApp and a reminder the previous day asking for double confirmation. Make participants feel valuable, as without their participation, the project would not be possible. Search for incentives to ensure participation lasts until the end of the project (vegetable baskets.
	workshops, fans).
Offer advice on ensuring on the maintaining	Bring support to participant by referring them to the
long-term benefits of the interventions after the	appropriate services such as the Municipal Energy
project's finalisation	Offices. Provide resources to make sure each participant has understood the actions they can do to reduce their energy consumptions and have healthier practices to improve their situation. Thank their participation at the end of the project. The cohesion of the group at the Citizen School for the Right to Energy and the potential for sharing knowledge learned during the workshops, as well as the tricks and best practices with family and friends, spreading the right to energy approach across the city. The potential to replicate the dynamics of the Citizen School for the Right to Energy with new participants after Wellbased.



WELLBASED

8.6.15 Success story

Images, photos

MJ is a 37 y/o single mother referred to the Wellbased project by her social worker at the Municipal Social Services. She lives in one of the most deprived areas in the city of Valencia, really close to the sea and the Valencian port. She has inherited the house from her mother – a traditional fishermen's' house – however it has not been renovated yet due to the high costs. She is currently unemployed as she has to take full care of the house and her 10 y/o son. She is doing some work on the house by herself; however, it is not enough as the house structure itself is in a poor condition and the renovation needs very technical work, knowledge and tools. The house windows are really old and made by wood, they have holes, and the glass is very thin. She claims that they feel really cold in winter as they can't keep the house at an adequate temperature because of the air filtrations. In addition, as it is very close to the sea, it is really humid causing discomfort both in winter and summer, as well as lack of sleep due to the heat and the cold. It has neither Air Conditioning of heating system. It has also damp in the walls, that she is taking care of with provisional solutions (paint, de-humidifiers).

When she joined the Wellbased Project, she was already a beneficiary of the Social Bonus, as she is really active on looking for opportunities to save and familiar with administrative procedures and applications. She was interested about the Energy Efficiency kit, the personalised advice to reduce consumption and the health screenings, as she normally does not have time to do regular follow up at the Medical Center. She also claimed that they both usually get sick in winter, they catch more colds and suffer from joint pain, while in summer they suffocate and are tired to do activities.

After doing the house review and the Energy Audit, the Energy Coaches were able to offer some advice to help her reduce her consumption even more and to try to keep the house at a more comfortable temperature. Also, the ventilation advice – alongside with the home sensor – to help reduce the damp on walls was very valuable. The time programmer and the power meter (to identify phantom use of energy and stand by) were really useful for the intervention, as well as the power strip to avoid them. The LED light bulbs, were also very valuable for her as the ones she had, had a softer light power and she needed more illumination on certain areas of the house.

During the house visit, the Energy Coaches noticed that the house floor was unstable. She explained that her neighbour below had water filtrations some time ago and since then the house floor had not been stable. It was worse in the bathroom, where there was even a hole next to the shower where you could see the house beneath. Seeing this as a major risk for the family safety, the Energy Coaches informed the competent Municipal Service and a municipal architect,





alongside with other technicians, visited the house to evaluate the risks and are currently doing periodic follow ups on the house and checking possible solutions. They have considered it is a matter of public health and safety.

Finally, the Wellbased team, as it is in touch with many other entities and projects working on similar fields, came across Socaire, a Madrid-based group focused on energy efficiency and house renovations. They were currently developing a project named "Houses that are worth living in" and they were using funds from companies with Social Responsibility. After some discussion, they were interested on MJ's case and came to visit her. Together with the Energy Coaches, they evaluated the house possibilities for renovation which could improve the insulation and comfort. With the budget available they were able to do the following:

- Renovation of 3 large windows (bedrooms and living room)
- Installation of 2 ceiling fans in both bedrooms
- New and more efficient fridge
- Installation of a new energy switch
- New tap water in the kitchen to save water

This was a total investment of 4.745,52€.

The Socaire team selected 6 more WB households to do an intervention with an additional budget of 11.04119€.

The Wellbased team think it will be very interesting to compare the home sensor results before and after the house renovation. In addition, to be able to measure it better, another sensor coming from a dropout household, was reseted and re-used on MJ's house to have as much information as possible about the impact of this renovation.

We consider MJ's case as a success story. Thanks to her participation she was able to (1) understand better her consumption and reduce it, (2) have an energy efficiency kit installed, (3) have an evaluation and follow up on the structural problems of her house from the municipal services, (4) have her health monitored during her whole participation, (5) have a house sensor which indicated when to ventilate to improve air quality and O2 levels at home and (6) get in touch with another project and be able to access to a house renovation, which improved house comfort, efficiency and savings.

MJ was keen to talk about her experience in Wellbased in a recorded interview [https://www.youtube.com/watch?v=8LXNWpD_2X0]. There, she explains how her participation in the project had improved their quality of life and helped her to save both in bills and energy consumption. She also claims the usefulness of these kind of projects and the need to have similar ones to be able to reach more households and families.



Funded by the Horizon 2020 Framework Programme of the European Union





The House façade





60





Bedroom's wooden window



weather stripe for doors



Holes and drooping in the terrace door









9 Observer city Skopje (North Macedonia)



Figure 13 Extract from the Skopje WUP (D3.2)

Energy poverty in Skopje is deeply rooted in a combination of socio-economic challenges, poor housing conditions, and rising energy costs. High unemployment rates, inadequate infrastructure, and inefficient housing have exacerbated energy poverty, impacting not only physical living conditions but also health outcomes. The inability to heat homes properly and afford rising energy prices places a heavy burden on vulnerable populations, especially during Skopje's harsh winters and hot summers.





In the WELLBASED project, Skopje, North Macedonia, participated as an observer city. Unlike the pilot cities, Skopje did not implement direct interventions during the project's timeline. Instead, its role focused on preparatory activities, gaining insights from the experiences of the pilot cities, and sharing knowledge with local stakeholders.

The key activities undertaken by Skopje included:

Skopje engaged in activities aimed at creating a feasibility study. This study was designed to facilitate the potential future implementation of energy poverty interventions. While Skopje did not conduct direct intervention actions, it followed similar procedures as the pilot cities to prepare for future program deployment like WUP for Skopje.

The Wellbased Urban Programme (WUP) in Skopje designed to aim and reflect how energy poverty could be addressed by leveraging interventions implemented in other pilot cities, as the city itself was not going to undertake direct actions during WELLBASED project. However, Skopje put its focus on raising awareness, education, regarding the issue of energy poverty in North Macedonia and having results from WELLBASED developing local policy proposals. The City of Skopje tried involving local stakeholders and focusing on the most vulnerable populations, such as s single parents, and low-income households.

Learning and Knowledge Sharing: Skopje actively participated in knowledge exchange with other pilot cities. This included sharing best practices and methodologies related to energy audits, data collection, and community engagement. These activities helped Skopje build the capacity to address energy poverty issues in its local context.

Local Stakeholder Engagement: The municipality of Skopje engaged in discussions and workshops focused on energy poverty. These activities raised awareness among local stakeholders about the importance of tackling energy poverty and exploring possible solutions for future interventions.

> Skopje's participation was strategic, focusing on laying the groundwork for addressing energy poverty while leveraging the experiences of other cities in the WELLBASED project. This preparation enabled Skopje to be better positioned for implementing energy poverty interventions in the future.



WELLBASED

10 Conclusions

The WELLBASED project, aimed at addressing energy poverty in six European cities, successfully implemented a series of interventions designed to alleviate the impact of energy poverty on vulnerable populations. The project utilized a multidisciplinary approach, drawing on the social-ecological model to address energy poverty at multiple levels—ranging from individual behaviours to broader community. Across the cities, various actions were carried out, including energy audits, energy efficiency trainings, and community engagement activities, all designed to empower households to better manage energy consumption and improve living conditions.

A critical aspect of the project was its tailored approach in each pilot city (WUPs). Each city faced unique socio-economic and infrastructural challenges, which were addressed through locally specific interventions. The pilots also emphasized the importance of gender considerations, particularly in reaching and supporting women such as single mothers, elderly women, and women responsible for household management. Collaboration with local stakeholders, local NGOs, other municipal services, housing corporations, and social organizations, played a key role in ensuring the success of the interventions.

The project faced several challenges, including recruitment difficulties, data collection issues, and the impact of external factors such as COVID-19 pandemic, inflation rates, energy crisis due to war in Ukraine and natural disasters. However, most of these challenges were mitigated through adaptive strategies, such as revising recruitment methods and recruitment duration, inviting trusted community figures, and seeking alternative funding sources. The lessons learned during the project underscore the importance of flexibility in project planning, the need for strong stakeholder engagement, and the value of continuous monitoring and evaluation.

Overall, WP3 as part of the WELLBASED project has demonstrated that addressing energy poverty through the interventions requires an integrated, context-sensitive approach that not only focuses on technical solutions but also addresses social and behavioural factors. While Work Package 3 (WP3) focused on the preparation and implementation of these interventions, the in-depth analysis of their effects will be conducted under Work Packages 4 and 5 (WP4 and WP5). These forthcoming analyses will evaluate the interventions' impact on energy consumption, health, and well-being, as well as the social and gender determinants of energy poverty. WP3 has provided the foundational work, ensuring that the interventions were effectively implemented across diverse urban environments, setting the stage for more comprehensive assessments in later phases.

Future projects can build on the successes of WELLBASED by further refining intervention strategies and ensuring that local contexts and vulnerabilities are adequately considered.



WELLBASED

11 Annex: Edirne

11.1 Health screenings data collection

Health screenings			
Status of overall action			
⊠ Finished			
□ Other (please specify):			
Health measurements were completed in August 2024 and the measurement results shall be entered into the WELLBASED Platform at the end of the month.			
Stakeholders involved during the im screenings	plementation of the action / who performs health		
Health personnel working in Edirne Munic	cipality.		
Place where the health screening	⊠ Participants' home		
took place	□ Health Centre (please, specify)		
	□ Municipality premises		
	□ Other (please, specify):		
How often health screenings were mea	asured		
Monthly			
The estimated time required for health	measurement (Implementation)		
20 minutes			
When health screenings took place			
First health screening	March 2023		
Last health screening	August 2024		
How health screenings were performed	d		
□ Directly by participants			
☑ Trained personnel			
□ Automatically			
Health measurement devices			
⊠ Pulsioxymeter			
⊠ Peak Flow			
⊠ Blood pressure and heart rate			
⊠ Sleep quality			
Number of devices/kits distributed among participants / personnel			
15 devices for health measurements / 2 personnel for health measurements and 2 personnel for sleep quality questionnaire			





Comments regarding health measurement devices: Health measurements are made monthly. Sleep quality questionnaire is made once in 3 months At the end of the month, the collected data is processed into the WELLBASED platform. Details of performing the health screenings SpO2, Blood pressure and peak flow measurements are taken monthly from the participants. Questionnaire for sleep quality is made once in 3 months. How health screenings measurement were recorded Implementation ☑ Inserted to WELLBASED platform by pilot's personnel Platform where the health data were uploaded during the implementation phase Uploaded to WELLBASED platform Omission(s) of surveys (if any) (please specify here the issue and provide explanations) Specify variation in in use of equipment to monitor health indicators 5 pcs SpO2, 5 pcs Blood Pressure and 5 pcs Peak Flow: Total 15 devices for health measurement **Key Performance Indicators KPI DESCRIPTION** PLANNED KEY **IMPLEMENTATION** RESULT **KEY RESULTS** 15 15 Number of devices for health measurements Risks that took place and what mitigation measures were taken, other relevant actions: Risk materialization and what have been List of risks that have taken place done Risk 1. Participants not being at home when This happens frequently during health municipal employees go to their homes for health measurement. Because participants work measurement irregularly and late. In order to find the appropriate time, meetings are frequent, or home visits may be made several times. Risk 2. Failure of the measuring devices Municipal health personnel go to the field with spare devices. Lessons learned and any replication tips for similar projects

Some participants are not at home even though it was previously arranged. Many are busy with work, such as collecting paper to earn money, which makes it hard to find a suitable time. However, municipal staff are working to keep in close contact and can make several visits if needed.







11.2 Data collection of comfort conditions at home (T, RH and CO2 sensors)

Data collection of comfort conditions at home (T_RH and CO2 sensors)
Status of overall action
Stakeholders involved during the implementation
EDM (joint controller) DEM and Local integrator (data processor)
Place where the T/H/CO2 devices were installed:
I juing room (generally they have one room)
□ Other (please specify)
Number of devices distributed among study group
38
If number of distributed devices is other than number of participants in study group, provide
explanations:
N/A
Networks used for T/H/CO2 data transfer
□ Sigfox
☑ Private network (Data is already collected on cloud servers of the provider. Although the LoRa
network is not used at the moment, it will be adapted to it.)
Model of the T/H/CO2 device
FLORAWISE Modular Health Sense
How often T/H/CO2 data measured
⊠ once per 10 minutes
□ once per 15 minutes
□ once per 30 minutes
□ once per 60 minutes
Budget and resources (from WELLBASED project or from other sources) for T/H/CO2 devices
WELLBASED project
Describe in text how T/H/CO2 data collection process was organised





The collected data is first recorded in the local integrator's database. It is then transferred to the Smart City Monitor Platform. While private network was previously used for the transfer, now both LoRa and private network infrastructure are available. The data is kept in the database minute by minute.

Key Performance Indicators

KPI DESCRIPTION	PLANNED	KEY	IMPLEMENTATION	KEY
	RESULT		RESULTS	
Number of devices	41		38	

Lessons learned and any replication tips for similar projects

Sometimes data was not received from the devices in a regular flow. When households were visited by municipality staff, the devices were plugged in, but it was still noticed that some households were not receiving a regular flow of data to the SCM platform. To prevent this, it is important to conduct more frequent inspections and reassure households that the devices are only used to measure air quality.

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what have been done
Risk 1. Problems with data transfer from sensors to	Regular checks will be made. If there is a problem
Smart City monitor	with any data flow, the device provider and ASIDEES
	will be contacted.

Lessons learned

During the installation, it was observed that some of the households selected for the Intervention Group had either moved or had electrical infrastructure that was not suitable for installation. Consequently, new households were added. Installation could not be completed in some households due to the homes being in use. In other cases, installation could not be completed because the households were not present.

11.3 Energy consumption

Energy consumption

Status of overall action

Finished

□ Other (please specify):

Stakeholders involved during the implementation of the action

EDM, DEM, local integrator & households

What information sources are used for energy consumption

□ Monthly access to electricity bill from participants

□ Asking for invoices of gas (grid)

□ Asking for receipts from gas (bottled), coal or other solid fuel.

□ Asking for other energy sources that were not paid by the participants (collection of wood, coal provided by the state etc.)

Other, please specify (It is planned to directly access energy consumption data with the energy analyser)







Describe in text energy data collection process a case	was organised including sub-actions if that was			
Data is collected with an energy analyzer. Currently, energy analyzers have been installed in 10 households due to the technical infrastructure of the houses.				
Platform where the data is uploaded during the i	mplementation phase			
Upload to WELLBASED platform				
□ Upload to Smart City Monitor platform.				
\boxtimes Other, please specify, was collected to the low	cal provider servers			
Energy consumption devices if applicable				
FLORAWISE X3-X4 ENERGY ANALYZER				
Number of devices				
10				
Budget and resources (from WELLBASED project or from other sources) for health screening actions				
WELLBASED project				
Risks that took place and what mitigation measures were taken, other relevant actions:				
List of risks that have taken place	Risk materialization and what have been done			
Failure to install energy analyzers in homes	The installation of energy analyzers was completed as long as the technical infrastructure of the houses was adequate and households gave their consent.			
Lessons learned				

To ensure household trust, it is important to provide households with detailed information about the data the device will collect.

11.4 Evaluation Questionnaire

Evaluation Questionnaire			
Status of overall action			
Image: Second Se			
□ Other (please specify):			
Stakeholders involved during the implementation			
Facilitators recruited from Roma grassroot organiz	ations.		
Place where the evaluation questionnaire	⊠ Participants' home		
took place:	□ Health Centre (please, specify)		
	Municipality premises		
	□ Other (please, specify):		
Data collection for evaluation questionnaire			
Questionnaire completed directly by participants.			
☑ Questionnaire completed by surveyors recruited by the pilot.			





□ Other, please specify

Describe the process

As the Roma communities are strongly bounded, closed-up communities, facilitators from Roma grassroots organizations who are familiar with the community were recruited to conduct surveys. Facilitators made house visits, and the surveys were conducted at participants' houses. Working schedule of participants were taken into account as many participants work irregular hours.

Platform where the data for the questionnaire uploaded

Uploaded to WELLBASED platform

□ Other, please specify

Budget and resources (from WELLBASED project or from other sources)

Budget for the printing of the questionnaires and surveyors were provided by WELLBASED project.					
Key Numbers	Т0	T1	T2	Т3	
	Baseline	6 months	12 Months	18 months	
Number of completed questionnaires from the	122	120	115	116	
intervention group					
Number of control group participants who took	123	123	123	124	
the questionnaire					
Number of completed questionnaires from the	123	123	123	124	
control group					
The estimated time required for questionnaire	1 hour				
before adjustments					
The estimated time required for questionnaire	e 30 min.				
after adjustments					
Risks and mitigation measures:					
List of risks that have taken place	Actions that	at have been p	performed		
Special requirements to conduct surveys in the	Funds were allocated from other budget items to				
pilot site were not taken into account. Many	recruit surveyors and to have questionnaires printed.				
participants in Edirne were not proficient in					
literacy and did not have reliable access to	Survey timetable was rescheduled to give few weeks				
internet yet no budget was allocated for	after the elections.				
facilitators to conduct surveys in hardcopies.					
Tensions were high during local and national					
election times. Facilitators had problems					
conducting surveys.					

Lessons learned

Local conditions in each pilot site have to be taken into consideration when preparing project budget and timetable for actions. Questionnaires must be kept as short as possible. Repetitive questions have participants lose focus and interest.



WELLBASED

11.5 Qualitative surveys

Qualitative surveys

Status of overall action

□ Finished

🛛 Other

The first round of interviews has been completed, although the second round is still ongoing. Due to the delayed implementation of interventions, the schedule for the first round of interviews was slightly pushed back. These interviews were conducted with 13 participants during the winter of 2024. To ensure a proper time gap between rounds, the second round of interviews began in July 2024 and is targeted for completion by the end of October 2024.

Description of what and how have been performed

Qualitative interviews were conducted in participants' homes to ensure their comfort and familiarity with the environment. To foster trust between the interviewer and the participants, Roma facilitators accompanied the interviewers during the sessions. The interviewees were carefully selected to provide diversity in age, gender, education, and employment status, enriching the range of experiences captured.

However, due to the small size of participants' homes, other household members were occasionally present during the interviews. In some cases, these additional household members also shared their opinions and experiences, contributing further insights to the discussions.

Stakeholders involved during the implementation

The Roma facilitators played a crucial role throughout the project, particularly during the qualitative interviews. Their primary responsibility was to build trust between the interviewers and participants, many of whom were from the Roma community. Given the historical marginalization and mistrust towards outsiders that some participants might have, the facilitators' involvement was essential in bridging cultural and social gaps.

By being familiar faces and trusted members of the community, the Roma facilitators helped create a more open and comfortable environment for the participants, encouraging honest and detailed responses during the interviews. Their presence also ensured smoother communication by clarifying any misunderstandings.

Place where the qualitative surveys took place:	Participants' home	
	\Box Health Centre (please, specify)	
	Municipality premises	
	□ Other (please, specify):	
How often qualitative surveys took place		
Six to eight months apart		





Platform where the data for the qualitative surveys is uploaded			
☑ Uploaded to WELLBASED platform			
□ Other, please specify			
Budget and resources (from WELLBASED project or from o	ther sources)		
Wellbased project budget			
Key Numbers			
Total number of qualitative surveys conducted through the implementation phase	16		
Number of completed qualitative surveys at the beginning of the implementation $(1^{st}$ round)	13		
Number of completed qualitative surveys later (2 nd round)	3		
Number of professionals who performed qualitative surveys	3		
Risks and mitigation measures:			
List of risks that have taken place	Actions that have been performed		
1) Presence of Additional Household Members:	1) Presence of Additional Household		
Limited living space meant other household members were	Members:		
often present, leading to interruptions and unsolicited input,	Interviewers adapted by being flexible		
potentially influencing responses.	and managing the input from other		
	household members, incorporating		
2) Cultural Sensitivity and Trust Issues:	relevant insights while maintaining		
accurate responses due to a lack of trust, especially when they			
accurate responses due to a lack of trust, especially when they			
	2) Cultural Sansitivity and Trust		
3) Distractions and Noise			
Environmental factors such as poise interruptions, and limited	Roma facilitators trusted within the		
space within participants' homes disrupt the interviews and	community were involved in all		
affect the depth of the discussions.	interviews to build rapport and bridge		
	cultural gaps, making participants		
4) Limited Privacy:	more comfortable sharing information.		
Due to the small size of homes, privacy was limited during	_		
interviews, which might have inhibited participants from openly	4) Distractions and Noise:		
sharing sensitive information.	Interviews were conducted at times		
	that minimized potential disruptions,		
5) Impact of Incomplete Home Improvements:	and interviewers remained patient and		
The failure to complete all planned home improvements created	adaptive to challenges in the		
a sense of disappointment, which affected participants' overall	environment.		
responses during interviews and often led to negative feedback.			
	4) Limited Privacy:		







Interviewers ensured that sensitive questions were asked discreetly and adjusted the interview approach based on the participant's comfort level.

5) Impact of Incomplete Home Improvements:

Interviewers acknowledged participants' concerns and allowed them to voice their frustrations, which helped to build trust and encouraged more open discussions about other aspects of the project.

Lessons learned

Managing Household Dynamics:

The presence of additional household members during interviews can provide valuable insights but also presents challenges in maintaining focus. Future projects should anticipate these dynamics and plan accordingly, perhaps by designating private spaces for interviews or incorporating structured opportunities for group input.

Importance of Cultural Sensitivity and Trust Building:

While the presence of additional household members during interviews can lead to interruptions or unsolicited input, conducting interviews in participants' homes remains crucial. Being in their own environment helps participants feel more comfortable, allows them greater control over the conversation, and minimizes the time burden by eliminating the need for travel. Future projects should recognize the value of this approach and consider strategies to manage household dynamics, such as clearly setting expectations with all household members or scheduling interviews at times when fewer interruptions are likely.

Adapting to Environmental Distractions:

Conducting interviews in participants' homes can lead to unexpected distractions. Flexibility and patience from interviewers are essential. Scheduling interviews at times with fewer potential disturbances and being prepared to adjust the approach as needed can help improve the interview quality.

Handling Limited Privacy:

Privacy concerns can inhibit participants from fully expressing themselves, especially in small living spaces. Being mindful of this and adapting the interview environment or approach to ensure participants feel safe discussing sensitive topics is essential.

Acknowledging Participant Frustrations:





When project expectations, such as home improvements, are not fully met, it's important to openly acknowledge these concerns. Addressing participant frustrations directly helps maintain trust and encourages more transparent feedback in other areas of the study.

12 Annex: Jelgava

12.1 Health screenings data collection

Status of overall action

x Finished

Other (please specify):

(if you checked Other, provide here your explanations and relevant details) Most participants continue to pass measurements until August 31.

Stakeholders involved during the implementation of the action / who performs health screenings

Participants have been individually provided with measuring equipment together with instructions. Measurements are made by themselves. Participants perform a pulse oximeter measurement, blood pressure/heart rate measurement and peak flow measurement, three times each and pass the readings once a month to the project team. Health measurements are reported by participants by calling the institution's phone number 8787 (the data is entered by the project employee in the database) or entering them themselves the link provided by WELLBASED.

Place where the health screening took place

⊠ Participants' home

 \Box Health Centre (please, specify)

□ Municipality premises

 \Box Other (please, specify):

How often health screenings were measured

once a month, three measurements

The estimated time required for health measurement (Implementation)

Aprox. 30 minutes

When health screenings took place

First health screeningduring the first month after the start of participationLast health screening18th month after participation start

How health screenings were performed

☑ Directly by participants

Trained personnel

□ Automatically

Health measurement devices

☑ Pulsioxymeter

Peak Flow

Blood pressure and heart rate





□ Sleep quality

The quality of sleep is analyzed according to the answers. Every three months, participants answer questionary about the quality and habits of their sleep.

Number of devices/kits distributed among participants / personnel

three health measuring devices issued to each participant:

Comments regarding health measurement devices:

An informative description of the use of the equipment and measurement limits has been given to each participant with the measuring equipment.

Details of performing the health screenings

participants responsibly and accurately try to take measurements

How health screenings measurement were recorded

Health measurements are reported by participants by calling the institution's phone number 8787 or entering them themselves the link provided by WELLBASED.

Implementation

□ Inserted to WELLBASED platform by pilot's personnel

☑ Participant called to the pilot to report the data, but data was inserted to WELLBASED platform by the pilot's personnel

Participant inserted data to WELLBASED platform by themselves.

 \Box Health data was collected automatically by the proprietary platform and then sent to WELLBASED platform.

□ Other, please specify

Platform where the health data were uploaded during the implementation phase

Uploaded to WELLBASED platform

□ Uploaded to Smart City Monitor platform.

Uploaded to the proprietary platform

□ Other, please specify

Omission(s) of surveys (if any)

We contacted the participant personally, discussed possible problems and asked to continue participating.

Specify variation in in use of equipment to monitor health indicators

At the start of the study, medical staff had a high occupancy due to Covid19. The covered area of the study is wide (difficulty circulating). Problematic time matching to measure for each participant. **Key Performance Indicators**

KPI DESCRIPTION	PLANNED	KEY	IMPLEMENTATION
	RESULT		KEY RESULTS





number of persons	146	118	
Risks that took place and what mitigation measures were taken, other relevant actions:			
List of risks that have taken place	Risk materialization and what have been done		
participants will not transfer measurement data	On the 24th day of each month, the number of entered data is checked and reminder SMS is sent, and then to the 28th date checked and sent repeated reminder SMS. If data are not entered regularly, then we contact by phone, discuss the situation and ask to transfer the data in the future.		
participants tired of participating, want to withdraw	Direct conversation explaining and pe participating. The par most convenient wa phone, in person, ent	with each participant, rsuading to continue ticipant was offered the ay to submit data (by er yourself)	
Lessons learned and any replication tips for similar projects			
Continuous communication and motivation of participants. Important option to choose how to			

transfer data.

12.2 Energy consumption

N/A

12.3 Data collection of comfort conditions at home (T, RH and CO2 sensors)

Data collection of comfort conditions at home (T, RH and CO2 sensors)
Status of overall action
X Finished
□ Other (please specify):
Stakeholders involved during the implementation
Local companies provided access to network and managed devices.
Place where the T/H/CO2 devices were installed:
x Living room (generally they have one room)



Kitchen



x Bedroom			
□ Other (please specify)			
Number of devices distributed among study grou	h		
118 (total number of devices distributed)			
If number of distributed devices is other than it	number of participants	in study group, prov	ide
explanations:			
The number of equipment corresponds to the numb	er of households (if two	participants from the sa	me
household, then one equipment is issued)			
Networks used for T/H/CO2 data transfer			
□ LoRa			
x Sigfox			
Private network (Data is already collected on or a second seco	cloud servers of the pro	vider. Although the Lo	Ra
network is not used at the moment, it will be ada	pted to it.)		
Model of the T/H/CO2 device			
Connected AirWitsCO2Plus			
How often T/H/CO2 data measured			
☐ once per 10 minutes			
☐ once per 15 minutes			
x once per 30 minutes			
☐ once per 60 minutes			
Budget and resources (from WELLBASED project	ct or from other sources	s) for T/H/CO2 devices	
91 301,76 € Data reading, transmission, maintenar	nce. Sensors.		
Describe in text how T/H/CO2 data collection pro	cess was organised		
Sensors are issued to participants, telling about its	operation, about the da	ata that is being read. T	Гhe
sensor reads the readings every 30 minutes and sen	nds them to the SCM dat	tabase. The participant of	can
track the sensor readings by reading them on the sc	reen.		
Key Performance Indicators			
KEI DESCRIF HON	RESULT		
	146	118	
l essons learned and any replication tins for sim	ilar projects	110	
-			
Risks that took place and what mitigation measu	res were taken. other r	elevant actions:	
List of risks that have taken place	Risk materialization a	and what have been	
	done		
Technical breakdowns of the device	Supplier replaces dama	ged equipment	
	Supplier replaces uarria	igeu equipment	







The device is turned off by the participant

Lessons learned

The number of purchases of equipment was successfully planned, technical breakdowns were found, equipment was replaced. Importantly, we chose sensors with displays, it is easy for participants to keep track of. Daily monitoring affected the size of the nature of the data. It's easy for participants to see the data on the display on a daily basis rather than locking down systems (especially for participants in years). Sensor equipment does not require special installation and is not connected to electricity, compact size that does not interfere.

12.4 Evaluation Questionnaire

Evaluation Questionnaire				
Status of overall action				
X Finished				
□Other (please specify):				
Place where the evaluation	me			
questionnaire took place:	please, specify)			
Municipality pre	emises			
□ Other (please, s	specify):			
Data collection for evaluation questionnaire				
x Questionnaire completed directly by participants.				
x Questionnaire completed by surveyors recruited by the p	pilot.			
□ Other, please specify				
Describe the process				
 According to the information given at the recruitment stage person fill the baseline questionnaire by himself entering the link provided by WELLBASED or conversation with researcher by visit (or by phone) 				
2. 6 months later According to the information given at the recruitment stage person fill the questionnaire by himself entering the link provided by WELLBASED data base or conversation with researcher by visit (or by phone)				
 12 months later According to the information given at the recruitment stage person fill the questionnaire by himself entering the link provided by WELLBASED data base or conversation with researcher by visit (or by phone) 				
 18 months later According to the information given at the recruitment stage person fill the questionnaire by himself entering the link provided by WELLBASED data base or conversation with researcher by visit (or by phone) 				
5. Completion of questionnaires are controled by JDC	and reminders are send to person if			
questionnaire is not complete on planned time.				
X Uploaded to WELLBASED platform				







$\hfill\square$ Other, please specify

Budget and resources (from WELLBASED project or from other sources)				
Three researchers are engaged in the project, conducting quantitative interviews and sleep quality interviews. The total cost until 31 August 2024 is: 28394.03euro				
Key Numbers	Т0	T1	T2	Т3
	Baseline	6 months	12 Months	18 months
Number of completed questionnaires from	124	120	117	116
the intervention group				
Number of control group participants who	o 33 33 32 32			32
took the questionnaire				
Number of completed questionnaires from	33	33	31	32
the control group				
The estimated time required for	40			
questionnaire before adjustments				
The estimated time required for	30			
questionnaire after adjustments				
Risks and mitigation measures:				
List of risks that have taken place Actions that have been performed				
participants busy and difficult to agree on	repeatedly asking to agree to the conversation			
the time of the conversation				
participants tired (time frame of the pilot	The project team motivated and encouraged the participants			
very long)	(by phone, in pe	rson, issuing a	is a thank you	small gifts with
the project logo)				
it's incomprehensible why questions are	Offered the opportunity for the participant himself to fill in the			
repeated all the time	database			
Lessons learned				
Inform participants that the same questions will be asked periodically. Because many didn't understand				
why the issues didn't change.				

12.5 Qualitative surveys

Qualitative surveys
Status of overall action
x Finished
□ Other
Description of what and how have been performed
The researcher contacts each participant who has agreed to participate in the qualitative interview and
agrees on the time and place of the meeting. Most of the interviews were conducted with respondents at
home, in some cases in a public place (café, park, by telephone).





Stakeholders involved during the implementation			
Place where the qualitative surveys took	xParticipants' home		
place:	□ Health Centre (please, specify)		
	□ Municipality premises		
	x Other (please, specify): café, park, by phone		
How often qualitative surveys took place			
First interview after base questionnaire, but before energy-audit. Second interview about a year after the first.			
Platform where the data for the qualitative s	surveys is uploaded		
x Uploaded to WELLBASED platform			
□ Other, please specify			
Budget and resources (from WELLBASED p	project or from other sources)		
First round: interviewing participants: 126.60	D euro, writing transcripts: 337.60 euro, translation of		
transcripts 1100 euro, Second round: interview	ing participants: 92.84 euro, The cost of writing transcripts		
is not covered by the project budget, translation	n of transcripts: 1038.27euro		
Key Numbers			
Total number of qualitative surveys	43		
conducted through the implementation phase			
Number of completed qualitative surveys at	22		
the beginning of the implementation (1 st			
round)			
Number of completed qualitative surveys later (2 nd round)	21		
Number of professionals who performed	1		
qualitative surveys			
Risks and mitigation measures:			
List of risks that have taken place	Actions that have been performed		
Busyness of respondents, postponement of	Perseverance of the researcher, positive communication		
interviews. Respondents do not want to let the	skills. Find possible meeting places.		
researcher into their homes			
Lessons learned			
Face-to-face conversation with each participant is important			





WELLBASED

13 Annex: Leeds

13.1 Health screenings data collection

Health screenings		
Status of overall action		
⊠ Finished		
□ Other (please specify):		
Stakeholders involved during the im	plementation of the action / who performs health	
screenings		
Place where the health screening	⊠ Participants' home	
took place	□ Health Centre (please, specify)	
	□ Municipality premises	
	□ Other (please, specify):	
How often health screenings were mea	asured	
As often as people would make appointm	nents with us. This was really challenging, as people were	
reluctant to meet up regularly, and others	began ignoring our calls.	
The estimated time required for health	measurement (Implementation)	
30 minutes. Following the protocol for the	e study.	
When health screenings took place		
First health screening	November 2022, with our initial round of recruitment.	
	This was led by Yanmike Olowe, who built up a good	
	rapport with tenants	
Last health screening	August 2024, the health screenings were completed by	
	Lucy Ellis who look of Fanmike Olowe's fole of much	
How health screenings were performe	d	
now nearth screenings were performed		
Health measurement devices		
⊠ Pulsioxymeter		
⊠ Peak Flow		
⊠ Blood pressure and heart rate		
⊠ Sleep quality		
Number of devices/kits distributed among participants / personnel		





1 – used by personnel only.		
Comments regarding health measurement devices:		
These were standard devices on recommendation of	of Josep Redon.	
Details of performing the health screenings		
For those participants who continued their involvement these were seen as positive meetings, and		
they enjoyed seeing Yanmike. These became quite sociable moments in which participants		
discussed the ongoing works, their health, and plans to study etc.		
How health screenings measurement were record	rded	
Implementation		
☑ Inserted to WELLBASED platform by pilot's p	personnel	
\Box Participant called to the pilot to report the d	lata, but data was insei	ted to WELLBASED
platform by the pilot's personnel		
Participant inserted data to WELLBASED pla	tform by themselves.	
\Box Health data was collected automatically by	the proprietary platfor	m and then sent to
WELLBASED platform.		
☐ Other, please specify		
Platform where the health data were uploaded during the implementation phase		
☑ Uploaded to WELLBASED platform		
□ Uploaded to Smart City Monitor platform.		
Uploaded to the proprietary platform		
□ Other, please specify		
Omission(s) of surveys (if any)		
(please specify here the issue and provide explanation	ons) where surveys are m	issing that is because
people did not want to complete them. They were invited to complete, and each month given plenty		
of time to engage.		
Specify variation in in use of equipment to moni	tor health indicators	
None. We decided to appoint a person to perform the	is role in the early days of	the project, and stuck
to that consistently.		
Key Performance Indicators		
KPI DESCRIPTION	PLANNED KEY	IMPLEMENTATION
	RESULT	KEY RESULTS
Monthly health measurements from all	125	Pilot could not
implementation group participants		report numbers
Risks that took place and what mitigation measu	ures were taken, other r	elevant actions:
List of risks that have taken place	Risk materialization a	and what have been
	done	





People losing interest in the study.	This risk did indeed materialise and we	
	gathered limited data as a result	
Lessons learned and any replication tips for similar projects		

Engaging participants over a longer period was a massive challenge in Leeds.

13.2 Data collection of comfort conditions at

home (T, RH and CO2 sensors)

Data collection of comfort conditions at home (T, RH and CO2 sensors)
Status of overall action
⊠ Finished
□ Other (please specify):
Stakeholders involved during the implementation
Devices and network were provide by Leeds City Council
Place where the T/H/CO2 devices were installed:
Living room (generally they have one room)
□ Kitchen
Bedroom
□ Other (please specify)
Number of devices distributed among study group
21 – to most of the households originally signed up to our intervention group.
If number of distributed devices is other than number of participants in study group, provide
explanations:
Note that we had a problem with supply of these devices in the early stages of the project due to Brexit
and supply chain issues. Some households then did not want us to come back and give them a sensor.
Networks used for T/H/CO2 data transfer
🖾 LoRa
Sigfox
\Box Private network (Data is already collected on cloud servers of the provider. Although the LoRa
network is not used at the moment, it will be adapted to it.)
Model of the T/H/CO2 device
Elsys ERS CO2 Lite
How often T/H/CO2 data measured
□ once per 10 minutes
□ once per 15 minutes





once per 30 minutes

☑ once per 60 minutes

Budget and resources (from WELLBASED project or from other sources) for T/H/CO2 devices The budget for the purchase of the devices sat with Leeds City Council and was used purely for the purchase of the sensors as the local authority already had a LoRaWAN network in place. The budget was 47,800 euros.

Describe in text how T/H/CO2 data collection process was organised

The device set-up was done by staff from Leeds City Council, this included setting the collection timescale and ensuring that the device key was recognised by the Council's LoRaWAN network.

The sensors were then passed to colleagues from the University of Leeds who undertook the installation in the properties of those people who were participating in the project so that the data collection could begin. The data was then forwarded to the Smart City Monitor dedicated server for Leeds.

Number of devices installed	125		21
	RESULT		KEY RESULTS
KPI DESCRIPTION	PLANNED	KEY	IMPLEMENTATION
Key Performance Indicators			

Lessons learned and any replication tips for similar projects

We had some households that did not want to join the project once they heard about these devices – there was concern that these might be monitoring devices from 'government'. This was particularly a concern for those that were migrants from repressive states.

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what have been done
Limited deployment after first meeting	We did our best to persuade people to let us put the devices in after the first meeting.
Lessons learned	

It is better to introduce these devices at the start of the project.

13.3 Evaluation Questionnaire

Evaluation Questionnaire		
Status of overall action		
⊠ Finished		
\Box Other (please specify):		
Stakeholders involved during the implementation	tion	
University of Leeds, Leeds City Council helped to advertise to recruit the control group.		
Place where the evaluation	articipants' home	
questionnaire took place:	lealth Centre (please, specify)	





	□ Municipality p	premises		
	⊠ Other (please	e, specify): onli	ne	
Data collection for evaluation questionn	aire			
☑ Questionnaire completed directly by	participants.			
□ Questionnaire completed by surveyo	rs recruited by th	ne pilot.		
□ Other, please specify				
Describe the process				
Platform where the data for the question	naire uploaded			
Uploaded to WELLBASED platform				
□ Other, please specify				
Budget and resources (from WELLBASED project or from other sources)				
This was part of UnivLeeds Budget - it is d	ifficult to say exac	tly how much.		
Key Numbers	Т0	T1	T2	Т3
	Baseline	6 months	12 Months	18 months
Number of completed questionnaires from the intervention group	8	5	7	5
Number of completed questionnaires from the control group	183	111	100	85
The estimated time required for	Given all of our questionnaires were completed online we do			
questionnaire before adjustments	not know these numbers. We did lose a few participants before the adjustments were made			
The estimated time required for questionnaire after adjustments	See above.			
Risks and mitigation measures:				
ist of risks that have taken place Actions that have been performed				
osing participants as the project goes on that numbers did not decline too much. We also offered voucher for 10 pounds for each of the stages of the questionnaire for the control group. Intervention group participants received 20 pounds per complete questionnaire.		ry and ensure also offered a stages of the vention group r completed		
Lessons learned			• • •	
We teel satisfied with the recruitment of the	control aroun and	the retention	ot the control (aroun It would

We feel satisfied with the recruitment of the control group and the retention of the control group. It would have been useful to have intervention group rewards earlier in the project.

13.4 Qualitative interviews

Qualitative interviews





Status of overall action		
⊠ Finished		
□ Other		
Description of what and how have been per	formed	
We conducted 10 interviews with participants in the winter of 2023, and followed up with 8 participants in the winter of 2024.		
Stakeholders involved during the implementation		
University of Leeds only		
Place where the qualitative interviews	⊠ Participants' home	
took place:	□ Health Centre (please, specify)	
	☐ Municipality premises	
	□ Other (please, specify):	
How often qualitative interviews took place	<u> </u>	
We were able to re-interview most participants	s. We were unable to make contact with one participant,	
and another moved house in the interim.		
Platform where the data for the qualitative interviews is uploaded		
☑ Uploaded to WELLBASED platform		
□ Other, please specify		
Budget and resources (from WELLBASED project or from other sources)		
This was the main part of the university of Leeds budget – precisely how much is difficult to report here.		
Key Numbers		
Total number of qualitative interviews	18	
conducted through the implementation phase		
Number of completed qualitative interviews at	10	
the beginning of the implementation (1 st		
round)		
Number of completed qualitative interviews	8	
Number of professionals who performed	1	
qualitative interviews	1	
Risks and mitigation measures:		
List of risks that have taken place	Actions that have been performed	
We did not know if we would be able to re-	All the other actions engaging WB participants played a	
interview people – whether they would	part here, as well as the ongoing relationship negotiated	
consent to a second visit.	by Yanmike Olowe.	
Lessons learned		
Continued contact makes it easier to recruit a l	ongitudinal sample.	



WELLBASED

14 Annex: Heerlen

14.1 Data collection from health screenings

Health screenings		
State of play of the action		
□ Finished		
☑ Other (please specify):		
Due to a technical problem, the T2 questionnaire was not completed by a large number of participants before the deadline (30 June 2024). The number of questionnaires that were completed on time was so low that in consultation with Erasmus Medical University and TNO it was decided to set a new deadline (July 31, 2024). This meant that the deadline for the T3 questionnaire and the medical measurements was also postponed by one month to September 30, 2024.		
Stakeholders involved in the implementation of the action / who is conducting health screenings		
The people themselves carry out the health measurements at home using the equipment they have received from Chipmunk. When they take the measurements, the data is automatically forwarded to the platform of Chipmunk. They send the data back to the platform of WELLBASED.		
Place where the health screening	Home of the participants	
took place	□ Health center (please specify)	
	Municipal buildings	
	□ Other (please specify):	
How often health screenings have bee	n measured	
Because our participants have all the equipment in-house to take the measurements themselves, they can measure as often as they want, but at least once a month.		
The estimated time required to measure	re health (implementation)	
10 minutes to be able to take all measurements yourself. (blood oxygen, blood pressure and lung capacity).		
When Health Screenings Took Place		
Initial Health Examination	01-06-2023	
Latest Health Examination	30-09-2024	
How Health Screenings Were Conducted		
☑ Directly by participants		
□ Trained staff		
□ Automatic		
Health measuring equipment		

14




⊠ Pulsioxymeter
☑ Peak flow rate
☑ Blood pressure and heart rate
□ Sleep quality
Number of devices/kits distributed among participants/staff
141
Notes Regarding Health Measurement Devices:
No further comments.
Details of how to conduct the health screenings
No further comments.
How the measurement of health screenings was recorded
Implementation
Inserted into the WELLBASED platform by the pilot's personnel
\square The participant called the pilot to report the data, but the data was inserted into the
WELLBASED platform by the pilot's staff
□ The participant has entered data into the WELLBASED platform himself.
oxtimes Health data was automatically collected by the proprietary platform and then sent to the
WELLBASED platform.
□ Other, please specify
Platform where the health data was uploaded during the implementation phase
Uploaded to the WELLBASED platform
Uploaded to the Smart City Monitor platform.
Uploaded to its own platform
□ Other, please specify
Omission(s) of surveys (if applicable)
N/A
Specify variation in the use of equipment to monitor health indicators
The reason we have chosen to let the people take all the measurements themselves is:
- Within the municipality of Heerlen, it is not possible to carry out these measurements
yourself. Our systems are not designed for this, we do not have the knowledge and the
people in-house.
- Hiring a nurse or research assistant cost too much money, the resources from the
WELLBASED project were not sufficient for that.
The above meant that we had to look for an agency outside the municipality of Heerlen that could
do this for us. In the end, we chose Chipmunk.





Key Performance Indicators			
KPI DESCRIPTION	PLANNED KEY OUTCOME	MAINRESULTSOFTHEIMPLEMENTATION	
People who undertook health measurements	146	141	
Risks that <u>have occurred</u> and what mitigation actions:	measures have been ta	aken, other relevant	
List of risks that have occurred	Risk materialization a done	and what has been	
A potential risk is that technical issues could lead to delays in completing key data collection	To mitigate the delay if technical issues partner deadline with agreemen with Erasmus Medical extending the submissi 2024. Consequently, the questionnaire and me were also adjusted by c alignment, ensuring sub without compromising the of subsequent phases.	they were caused by ers worked on a new nt and in consultation University and TNO, on period to July 31, e deadlines for the T3 edical measurements one month to maintain ficient data collection ne quality or schedule	
Lessons learned and any replication tips for similar projects			

A key lesson learned is the importance of having contingency plans for technical disruptions in data collection.

14.2 Data collection of home comfort conditions (T, RH and CO2 sensors)

Data collection of home comfort conditions (T, RH and CO2 sensors)

State of play of the action

- □ Finished
- Other (please specify):

Due to a technical problem, the T2 questionnaire was not completed by a large number of participants before the deadline (30 June 2024). The number of questionnaires that were completed on time was so low that in consultation with Erasmus Medical University and TNO it was decided to set a new deadline







(July 31, 2024). This meant that the deadline for the T3 questionnaire and the measurements of the environmental factors was also postponed by one month to September 30, 2024.

Stakeholders involved in the implementation

Chipmunk.

In addition to making measuring equipment available to the participants in the intervention group, Chipmunk also offered support in the event of malfunctions and other technical help requests. In other words, a helpdesk function. Chipmunk also supported the participants in completing the questionnaires and the consent forms.

Place where the T/H/CO2 devices are installed:

- Living room (generally they have one room)
 - □ Corridor
 - □ Kitchen
 - □ Bedroom
 - □ Other (please specify)

Number of devices distributed throughout the study group

Equipment was provided to 141 participants in the intervention group.

If the number of devices distributed is different from the number of participants in the study group, please explain:

In D3.3 "Intermediary report on the implementation of the urban programme" (Feb. 2023), 43 participants in the intervention group were reported. After intensive campaigning in the spring of 2023, the pilot was actually able to start with 141 participants at the beginning of July 2023.

Networks used for the transmission of T/H/CO2 data

🛛 Lora

- □ Sigfox
- □ Private network (Data is already collected on cloud servers owned by the provider.

Although the LoRa network is not being used at this time, it will be adapted to it.)

Model of the T/H/CO2 device

How often T/H/CO2 data measured

- once every 10 minutes
- □ once every 15 minutes
- ☑ once every 30 minutes
 - once every 60 minutes

Budget and resources (from the WELLBASED project or from other sources) for T/H/CO2 devices After a tender, Chipmunk Health BV was commissioned to roll out the measuring equipment to the participants in the intervention group for the Heerlen pilot. The costs involved are covered by the project funds allocated to Heerlen.

Describe in text how the process for collecting T/H/CO2 data was organized





- 1. SpO2 Meter and Blood Pressure Monitor Connected to Chipmunk Router via Bluetooth:
 - a. The SpO2 meter and blood pressure monitor are equipped with Bluetooth Low Energy (BLE) capability.
 - b. When the participant uses these devices, they establish a connection with the Chipmunk router via BLE.
 - c. The Chipmunk router acts as a bridge between these medical devices and the participant's Wi-Fi router.
- 2. Chipmunk Router:
 - a. The Chipmunk router serves as a central hub for collecting data from the connected medical devices.
 - b. It receives data from the SpO2 meter and blood pressure monitor via Bluetooth.
 - c. Once received, the data is processed and transmitted to the participant's Wi-Fi router for further transmission to the cloud or a designated server.
- 3. Participant's Wi-Fi Router:
 - a. The Chipmunk router is connected to the participant's Wi-Fi router, which serves as a gateway to the internet.
- 4. Air Quality Meter Sending Data via LoRa Network:
 - a. The air quality meter measures CO2 levels, air moisture, and temperature.
 - b. Instead of BLE, it utilizes the LoRaWAN (Long Range Wide Area Network) protocol for communication.
 - c. LoRaWAN enables long-range communication with low power consumption, making it suitable for IoT devices like the air guality meter.
 - d. The meter sends its data packets over the LoRa network to a LoRa gateway, which is connected to the internet.
- 5. Participant's Manual Input of Peak Flow Meter Measurements:
 - a. The participant uses a peak flow meter to measure respiratory function.
 - b. Unlike the other devices, the peak flow meter does not connect directly to the Chipmunk router or any other network.
 - c. Instead, the participant manually records the measurements and inputs them into their Chipmunk dashboard.
 - d. The dashboard serves as a central interface for the participant to view and manage all their health data, including the manually entered peak flow meter measurements.

Key Performance Indicators .

No KPIs are described for this task, but:		
KPI DESCRIPTION	PLANNED KEY	MAIN RESULTS OF
	OUTCOME	THE
		IMPLEMENTATION
	In D3.3 "Intermediary	the pilot was
	report on the	actually able to start
	implementation of the	with 141 participants
	urban programme"	at the beginning of
	(Feb. 2023), 43	July 2023.
	participants in the	
	intervention group	
	were reported	

Lessons learned and any replication tips for similar projects





N/A				
Risks that <u>have occurred</u> and what mitigation measures have been taken, other relevant actions:				
List of risks that have occurred Risk materialization and what has been done				
N/A				
Lessons learned				
N/A				

14.3 Energy consumption N/A for the municipality of Heerlen

N/A

14.4 Evaluation questionnaire

Evaluation questionnaire

State of play of the action

- □ Finished
- Other (please specify):

Due to a technical problem, the T2 questionnaire was not completed by a large number of participants before the deadline (30 June 2024). The number of questionnaires that were completed on time was so low that in consultation with Erasmus Medical University and TNO it was decided to set a new deadline (July 31, 2024). This meant that the deadline for the T3 questionnaire and the measurements of the environmental factors was also postponed by one month to September 30, 2024.

Stakeholders involved in the implementation

Chipmunk Chipmunk provided telephone support i participants' homes.	n completing the questionnaires or, if requested, at the
Place where the evaluation questionnaire took place:	 Home of the participants Health center (please specify) Municipal buildings Other (please specify):
Data Collection for Evaluation Question	naire
 Questionnaire that will be comp Questionnaire completed I Other, please specify 	leted directly by the participants. by surveyors recruited by the pilot.





Describe the process

Participants in the project were sent timely an email link from Chipmunk that allowed participants to access the questionnaires. The email also regularly explained how and why and when the questionnaires needed to be completed. Regularly, Chipmunk contacted València University to request lists of participants who did or did not complete the questionnaires. One to two weeks before the deadline, Chipmunk contacted by phone to motivate those who had not yet completed the questionnaires to do so. Participants who did complete the questionnaires received a voucher/gift card as a reward.

Platform where the data for the questionnaire was uploaded

☑ Uploaded to the WELLBASED platform

□ Other, please specify

Budget and resources (from the WELLBASED project or from other sources)

The costs involved are covered by the project funds allocated to Heerlen.

Key figures	Т0	T1	T2	T3
	Baseline	6 months	12 months	18 months
Number of completed questionnaires of the intervention group	115	97	86	83 (30-09- 2024)
Number of participants in the control group who completed the questionnaire	82	67	62	59 (30-09- 2024)
The estimated time required for the questionnaire before adjustments	On average, i questionnaires.	it takes 30	minutes to	complete the
The estimated time required for the questionnaire after adjustments	On average, i questionnaires.	it takes 30	minutes to	complete the
Risks and mitigation measures:				
List of risks that have occurred	Actions that have been taken			
People do not fill in the questionnaires or not all of them.	Chipmunk contacted people who have not yet completed the questionnaires by telephone with the request to complete them.			
The municipality of Heerlen and Chipmunk do not have the information of completed or uncompleted questionnaires, which means that we are dependent on the University of Valencia.	Request informa regular basis. W	ation from the hich should ra	University of ther be done a	Valencia on a automatically.
Dependency on technology/internet makes the process vulnerable.	Regular monitori	ing		
Lessons learned				
Pilot Heerlen should remain active in monitoring the processes in the project.				





Even though everything is going online, you have to stay on top to make sure everything is going well

14.5 Qualitative surveys

Qualitative surveys

State of play of the action

Finished

□ Other

Description of what and how was carried out

Municipality Heerlen has outsourced the taking of the qualitative interviews to project partner TNO. For this, they made a plan of how they wanted to do the interviews. The interviews were mainly related to the personal living environment of the participant. In particular, questions were asked that did not appear in the questionnaires. What do the participants do in their free time, what does their daily life look like, have the participants become more aware of energy consumption now with this project, what do they think of their homes, can they count on outside help, what does their social network look like, are examples of questions from the interviews.

From a technical point of view of the research, at least 10 interviews were needed. The first round took place in the period November-December 2023. The 2nd round was done in the period March-April 2024. Chipmunk made a selection of 15 random addresses from the participant database.

The interviews were done in the Dutch language. Since the interviews were recorded with sound equipment, they had to be transcribed and then translated into English. The transcribing was done by TNO itself and the translation to English was done by a local translation agency. The records of the interviews were shared with University of Leeds for further analysis.

 Stakeholders involved in the implementation

 TNO in Amsterdam and Acolad Translation Agency in Maastricht.

 Place where the qualitative surveys took place:
 Image: Home of the participants

 Image: Imag

In Heerlen, 21 qualitative interviews were conducted. Because of the pilot set-up, the qualitative interviews were carried out at the request of the municipality by TNO in Amsterdam, which is also participating in the project. Based on a random selection of 15 participants by Chipmunk, TNO approached this group of participants for an appointment. In the end, 12 participants participated in the 1st round (December 2023) and 9 interviews were conducted in the 2nd round (April 2024). Platform where the data for the qualitative surveys are uploaded

☑ Uploaded to the WELLBASED platform

□ Other, please specify





Budget and resources (from the WELLBASED project or from other sources)

To carry out the qualitative interviews, the budget allocated to Heerlen for this purpose was transferred to TNO (a total of €11,162). TNO transcribed the interviews at its own expense. The municipality commissioned an external translation agency to translate these interviews from NL to E. The costs involved turned out to be higher than budgeted. The municipality paid the difference with its own resources.

Key figures	
Total number of qualitative surveys	21
carried out during the execution phase	
Number of completed qualitative surveys	12
at the beginning of implementation (1st	
round)	
Number of qualitative surveys completed	9
later (2nd round)	
Number of professionals who conducted	3
qualitative surveys	
Risks and mitigation measures:	
List of risks that have occurred	Actions that have been taken
Scheduling appointments is very difficult.	The participants were treated to extra vouchers for the
The willingness to participate in the	cinema.
surveys in addition to filling in the regular	
questionnaires was also experienced as	
an additional burden.	
Lessons learned	
When conducting the qualitative interviews	, it turned out that the selected small group still have

difficulty with yet another part of the project. Very cautiously, you could say that people were "tired of it". The fact that it was successful is due to the provision of a bonus to the participants, which is an extra cost.

15 Annex: Óbuda

15.1 Health screenings data collection

Health screenings

Status of overall action

I Finished

 \Box Other (please specify):





Stakeholders involved during the implementation of the action / who performs health				
screenings				
Obuda Health Visitors				
Place where the health screening	⊠ Participants' home			
took place	□ Health Centre (please, specify)			
	⊠ Municipality premises			
	□ Other (please, specify):			
How often health screenings were mea	asured			
Health data was taken monthly, each mo	nth participants could choose to attend one of two health			
The estimated time required for health	massurement (Implementation)			
The implementation of each event was a	ineastrement (implementation)			
time and if necessary more personnel	participated in order to ensure a smooth operation. The			
health workers alternately measured blood	d pressure used the spirometers and the pulse oximeters			
If someone needed help filling in the sleep) quality questionnaire, the health workers willingly helped			
to record the answers during the waiting t	ime. A full health measurement took an average of 10-15			
minutes in total.	<u>.</u>			
When health screenings took place				
First health screening	December 2022			
Last health screening	August 2024			
How health screenings were performed				
Directly by participants				
⊠ Trained personnel				
□ Automatically				
Health measurement devices				
⊠ Pulsioxymeter				
⊠ Peak Flow				
⊠ Blood pressure and heart rate				
⊠ Sleep quality				
Number of devices/kits distributed amo	ong participants / personnel			
The devices and instruments needed for h	ealth measurements are purchased from a local company			
engaged in the procurement of medical d	evices with whom the Nurse Service has experience and			
an existing relationship.				
The following devices and instruments we	ere distributed among personnel in order to collect health			
data:				
- 3 pieces of blood pressure monit	tors (UMRON M" (HEM-/143-E)			
- 1 piece of extra size cuff for blood pressure monitor				
 3 pieces of adapters for blood pressure monitors 				





- 3 pieces of spirometers (CMS / SP10)
- 1300 pieces of tubes compatible with spirometers
- 3 pieces of pulse oximeters (CMS50pro)
- 5000 pieces of paper towels
- 100 pieces of Nitrylex gloves
- 3 litres of innocid surface disinfectant
- 2,5 litres of surgical hand sanitizer
- 2 litres of bactericide, fungicide, virucidal, sporicidal, tuberculocidal instrument-device and surface disinfectant.

Details of performing the health screenings

The health data collections took place between December 1, 2022 and August 31, 2024, on a monthly basis (with the exception of July and August 2023, due to the summer holidays). Participants could choose between two sessions per month, usually one in the morning and one in the evening, so that everyone could find a suitable time. The location of the measurements was a place close to the participants' homes, in some cases a cultural centre, in other cases a health centre. The equipment required for the data collection was procured in the fall of 2022; replacement of consumables was continuous, as needed.

How health screenings measurement were recorded

Implementation

☑ Inserted to WELLBASED platform by pilot's personnel

□ Participant called to the pilot to report the data, but data was inserted to WELLBASED platform

by the pilot's personnel

□ Participant inserted data to WELLBASED platform by themselves.

□ Health data was collected automatically by the proprietary platform and then sent to WELLBASED platform.

□ Other, please specify

Platform where the health data were uploaded during the implementation phase

 \boxtimes Uploaded to WELLBASED platform

□ Uploaded to Smart City Monitor platform.

□ Uploaded to the proprietary platform

□ Other, please specify

Specify variation in use of equipment to monitor health indicators

Before starting the intervention, it was decided to carry out the collection of health data with the help of trained health workers. The primary reason for this was that it was desired that the collected data is valid, reliable and comparable, which could not have been guaranteed if the participants collected the data themselves - given their lack of experience. It was also important that health data is taken with the same types of instruments. Working together with health workers turned out to be beneficial





from the point of view that a significant number of the participants were single pensioners, who were particularly happy that they had the opportunity to socialize in this form as well.

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what have been done
n/a	n/a

Lessons learned and any replication tips for similar projects

Working together with health workers ensured that the collected health data is valid, reliable and comparable. Involving personal in the implementation turned out to be beneficial from the point of view that a significant number of the participants were single pensioners, who were particularly happy that they had the opportunity to socialize in this form as well.

15.2 Data collection of comfort conditions at

home (T, RH and CO2 sensors)

Data collection of comfort conditions at home (T, RH and CO2 sensors)
Status of overall action
⊠ Finished
□ Other (please specify):
Stakeholders involved during the implementation
Local sensors' provider: Info CardWare Hungary
Place where the T/H/CO2 devices were installed:
Living room (generally they have one room)
⊠ Corridor
□ Kitchen
Bedroom
□ Other (please specify)
Number of devices distributed among study group
52

If number of distributed devices is other than number of participants in study group, provide explanations:

The installation of the sensors at the beginning of the implementation period suffered several issues, including a delay, because of COVID and uncertain circumstances, eg. hardships in connection with recruitment. Recruitment resulted in included households scattered all over the neighbourhood, instead of being limited to a few neighbouring blocks. This resulted in higher implementation costs as new systems and data transmitters needed to be installed, however, inflation also peaked at the very same time, making it difficult to install sensors. A decision was made to install sensors in as many households





as possible, with the budget originally set aside for the task, which meant that households away from the focal point were left without devices.

Networks used for T/H/CO2 data transfer

🗆 LoRa

□ Sigfox

☑ Private network (Data is already collected on cloud servers of the provider. Although the LoRa network is not used at the moment, it will be adapted to it.)

Model of the T/H/CO2 device

How often T/H/CO2 data measured

- □ once per 10 minutes
- Once per 15 minutes
- once per 30 minutes
- □ once per 60 minutes

Budget and resources (from WELLBASED project or from other sources) for T/H/CO2 devices

The implementation of the T/H/CO2 data collection cost 25,250.99 euros, which included the fee of the T/H/CO2 devices, data transmitters, data system and installation costs. It was financed from the Wellbased project sources.

Describe in text how T/H/CO2 data collection process was organised

Before purchasing the sensors, it was necessary to assess the distance between the participating households. In order to keep the implementation costs as low as possible, in the initial phase of the recruitment, it was necessary to ensure that the participants were residents of given residential buildings if possible, so 40 sensors were allocated to the first households. Unfortunately, due to the recruitment difficulties, it became necessary to expand the recruitment circle to the outskirts of the target area, which meant that households away from the focal point were left without devices.

After the end of the recruitment, the additional households were selected whose location allowed additional sensors to be installed within the originally planned budget.

During the installation, an external expert company visited the participants, determined the placement within the apartment, and explained the operation of the devices to the residents.

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place	Risk materialization and what have been done
RISK 1. Households were scattered all over the	A decision was made to install sensors in as many
neighbourhood, which resulted in hardships during	households as possible, with the budget originally
implementation.	set aside for the task, which meant that households
	away from the focal point were left without devices.
RISK 2. The installation of the sensors suffered	The recruitment area was expanded to the outskirts
delay because of COVID and uncertain	of the target area and significantly greater
circumstances, eg. hardships in connection with	resources were invested in recruitment.
recruitment.	





RISK 3. The participants were skeptical about the sensors, fearing that it also collects sensitive data.

The external expert explained the exact operation of the devices and assured the participants that the device can only record data related to indoor air quality.

Lessons learned

Before implementing a similar intervention, it is absolutely necessary to assess the location of the apartments or to consciously strive for their close location. In order to manage mistrust, simple, clear and transparent communication is inevitable.

15.3 Evaluation Questionnaire

Evaluation Questionnaire				
Status of overall action				
⊠ Finished				
□ Other (please specify):				
Stakeholders involved during the impler	nentation			
Óbuda-Békásmegyer Urban Development	Plc.			
Place where the evaluation	⊠ Participants'	home		
questionnaire took place:				
□ Municipality premises				
	□ Other (please	e, specify):		
Data collection for evaluation questionn	aire			
☑ Questionnaire completed directly by	participants.			
Questionnaire completed by surveyo	rs recruited by th	he pilot.		
□ Other, please specify				
Describe the process				
The Óbuda team informed the participants about the due date for completing the questionnaires by phone				
and email. Those who were comfortable with filling in the online questionnaires, recorded their answers				
independently. For those who did not have internet access or had difficulties handling the online				
questionnaire, the Obuda team asked the questions over the phone and recorded the answers.				
Platform where the data for the questionnaire uploaded				
☑ Uploaded to WELLBASED platform				
□ Other, please specify				
			=-	TO
Key Numbers	Т0	T1	12	13
Key Numbers	T0 Baseline	T1 6 months	12 12 Months	13 18 months
Key Numbers Number of completed questionnaires from	T0 Baseline 82	T1 6 months 80	12 12 Months 78	13 18 months 77





Number of control group participants who took the questionnaire	here	here	here	here
Number of completed questionnaires from the control group	29	25	25	25
The estimated time required for questionnaire before adjustments	60-70 minutes			
The estimated time required for questionnaire after adjustments	15-20 minutes			
Risks and mitigation measures:				
List of risks that have taken place	Actions that have been performed			
RISK 1. People felt overwhelmed by the questionnaire before adjustment and several of them claimed they wanted to stop participating due to the length and sensitivity of the questionnaire.	The team responsible for the questionnaires were helpful and willing to shorten and adjust the questions so that the questionnaire would not overwhelm participants.			
Lessons learned				
In the case of regular data collection, it r	niaht be more us	eful to compile	e shorter, mor	re to the point

questionnaires. More sensitive questions may be worth investigating during a qualitative survey.

15.4 Qualitative surveys

Qualitative surveys

Status of overall action

I Finished

□ Other

Description of what and how have been performed

Before conducting the interviews, a survey was conducted to determine which of the project participants would be willing to participate in a qualitative study. Among the willing participants, the staff of the Óbuda Family Counselling and Child Protection Centre (ÓCSTGYVK) selected the interviewees, based on how communicative and having good social skills the person was known.

After the selection, ÓCSTGYVK colleagues arranged an appointment by phone and then visited the interviewees in person at their apartments. After verbal consent, an audio recording was made of the conversation, from which the interviewers made a verbatim transcript, and the anonymized transcript was handed over to the Óbuda team. The Óbuda team then checked to make sure that no data or information remained in the transcripts that would make the participant recognizable in any way, and then handed over the finalized, anonymized transcripts to a translation agency in order to prepare the English translations.

Stakeholders involved during the implementation

Óbuda Family Counselling and Child Protection Centre





Place where the qualitative surveys took	⊠ Participants' home	
place:	□ Health Centre (please, specify)	
	Municipality premises	
	□ Other (please, specify):	
How often qualitative surveys took place		
The first round of interviews took place in N conducted in April-May 2024	ovember-December 2023, while the second round was	
Platform where the data for the qualitative surveys is uploaded		
■ I Inloaded to WELL BASED platform		
Budget and recourses (from WELLBASED r	project or from other courses)	
The task was financed from staff costs at LTP		
Key Numbers	000101111.	
Total number of qualitative surveys	30 (included in the study: 18)	
conducted through the implementation phase		
Number of completed qualitative surveys at	A total of 20 interviews were conducted in the 1 st round,	
the beginning of the implementation (1st	10 of them were included in the study.	
round)		
Number of completed qualitative surveys later	A total of 10 interviews were conducted in the $2^{\mbox{\scriptsize nd}}$ round,	
(2 nd round)	8 of them were included in the study.	
Number of professionals who performed	7 (included in the study: 3)	
qualitative surveys		
Risks and mitigation measures:		
List of risks that have taken place	Actions that have been performed	
RISK 1. Very first round of interview materials	This was kindly indicated to the personnel, however,	
were shorter and of lower quality than	after receiving new material, Obuda team was still not	
desired.	content. A formal meeting was needed to clarify	
	expectations, which resulted in selecting unerent	
RISK 2 When fixing appointment for the 2 nd	ÓCSTGYVK team found two participants who	
round of interview, there were two interviews	substituted for the interviewees, however, they did not	
that could not be conducted again.	have an earlier transcript to work with, therefore they	
-	were left out of the study.	
Lessons learned		

It was essential to clarify expectations regarding the outputs of the survey, as well as to choose interviewees and researchers carefully.



WELLBASED

16 Annex: València

16.1 Health screenings data collection

Status of averall action			
Status of overall action			
⊠ Finished			
□ Other (please specify):			
Stakeholders involved during the implementation of the action / who performs health			
screenings			
Novus			
Place where the health screening			
took place Health Centre (please, specify)			
□ Municipality premises			
□ Other (please, specify):			
How often health screenings were measured			
Monthly			
The estimated time required for health measurement (Implementation)			
Participants receive every month a visit from Novus or Valencia Clima i Energia profes	sionals to		
take their health measurements and record in the platform the values of their blood press	ure, heart		
rate, lung capacity and blood oxygen, 3 measures of each of the measurements are take	n. It takes		
around 20-30 minutes to record all the parameters.			
The sleep questionnaire is done every 3 months in the participants home. The profession	nals help		
participants to fill the questionnaires in their tablets or laptops.			
When health screenings took place			
First health screening During the first intervention, the month depends	s on when		
the participant joined the project M19-M29	`		
Firs participant joined the project in October 2.	<u>/.</u>		
Last neatth screening I ne last screening was taken in August 24. Me	ŧ∠		
	How nearth screenings were performed		
	Unrectly by participants		
□ Irained personnel			
Health measurement devices			
⊠ Peak Flow			
⊠ Blood pressure and heart rate			





01	ipants / personnei		
The personnel had 5 units of each device			
Comments regarding health measurement devices:			
There are 5 units of each of the equipment:			
i Pulsioxymeter and heart rate			
ii Peak Flow			
iii Blood pressure			
Details of performing the health screenings			
Each measure is taken 3 time on a seated position	on.		
How health screenings measurement were recor	ded		
Implementation			
☑ Inserted to WELLBASED platform by pilot's p	ersonnel		
□ Participant called to the pilot to report the d	ata, but data was inser	ted to WELLBASED	
platform by the pilot's personnel			
□ Participant inserted data to WELLBASED pla	tform by themselves.		
$\hfill\square$ Health data was collected automatically by	the proprietary platfor	m and then sent to	
WELLBASED platform.			
☐ Other, please specify			
Platform where the health data were uploaded d	uring the implementation	on phase	
Platform where the health data were uploaded de ☑ Uploaded to WELLBASED platform	uring the implementation	on phase	
 Platform where the health data were uploaded do ☑ Uploaded to WELLBASED platform ☑ Uploaded to Smart City Monitor platform. 	uring the implementatic	on phase	
 Platform where the health data were uploaded do ☑ Uploaded to WELLBASED platform ☑ Uploaded to Smart City Monitor platform. ☑ Uploaded to the proprietary platform 	uring the implementatic	on phase	
 Platform where the health data were uploaded do Uploaded to WELLBASED platform Uploaded to Smart City Monitor platform. Uploaded to the proprietary platform Other, please specify 	uring the implementatic	n phase	
Platform where the health data were uploaded do ☑ Uploaded to WELLBASED platform □ Uploaded to Smart City Monitor platform. □ Uploaded to the proprietary platform □ Other, please specify Omission(s) of surveys (if any)	uring the implementatic	n phase	
Platform where the health data were uploaded do ☑ Uploaded to WELLBASED platform □ Uploaded to Smart City Monitor platform. □ Uploaded to the proprietary platform □ Other, please specify Omission(s) of surveys (if any) N/A	uring the implementatic	n phase	
Platform where the health data were uploaded do	uring the implementatio	n phase	
Platform where the health data were uploaded do	uring the implementation to record to record	n phase the health measures	
Platform where the health data were uploaded do ☑ Uploaded to WELLBASED platform □ Uploaded to Smart City Monitor platform. □ Uploaded to the proprietary platform □ Other, please specify Omission(s) of surveys (if any) N/A Specify variation in in use of equipment to monit The energy technicians and the external company were selected as they had experience and knowledge	tor health indicators that was hired to record ge on similar projects. Th	n phase the health measures e staff was trained by	
Platform where the health data were uploaded data ☑ Uploaded to WELLBASED platform □ Uploaded to Smart City Monitor platform. □ Uploaded to the proprietary platform □ Other, please specify Omission(s) of surveys (if any) N/A Specify variation in in use of equipment to monit The energy technicians and the external company were selected as they had experience and knowledged a qualified nurse and videos on how to record the dia	tor health indicators that was hired to record ge on similar projects. Th fferent measurements we	the health measures e staff was trained by ere provided.	
Platform where the health data were uploaded data ☑ Uploaded to WELLBASED platform □ Uploaded to Smart City Monitor platform. □ Uploaded to the proprietary platform □ Other, please specify Omission(s) of surveys (if any) N/A Specify variation in in use of equipment to monitor The energy technicians and the external company were selected as they had experience and knowledge a qualified nurse and videos on how to record the dial It was important for the project not to just record the	tor health indicators that was hired to record ge on similar projects. Th fferent measurements we he health values but also	the health measures e staff was trained by ere provided. to to keep participants	
Platform where the health data were uploaded data ☑ Uploaded to WELLBASED platform □ Uploaded to Smart City Monitor platform. □ Uploaded to the proprietary platform □ Other, please specify Omission(s) of surveys (if any) N/A Specify variation in in use of equipment to monit The energy technicians and the external company were selected as they had experience and knowledge a qualified nurse and videos on how to record the die It was important for the project not to just record the It was important for the project that's why it was important to	tor health indicators that was hired to record ge on similar projects. The fferent measurements we he health values but also b have on board multidisc	the health measures the staff was trained by ere provided. to keep participants iplinary professionals.	
Platform where the health data were uploaded data ☑ Uploaded to WELLBASED platform □ Uploaded to Smart City Monitor platform. □ Uploaded to the proprietary platform □ Other, please specify Omission(s) of surveys (if any) N/A Specify variation in in use of equipment to monitor The energy technicians and the external company were selected as they had experience and knowledge a qualified nurse and videos on how to record the dia It was important for the project not to just record the with the project that's why it was important to Key Performance Indicators	tor health indicators that was hired to record ge on similar projects. Th fferent measurements we he health values but also b have on board multidisc	the health measures e staff was trained by ere provided. to to keep participants iplinary professionals.	
Platform where the health data were uploaded data ☑ Uploaded to WELLBASED platform □ Uploaded to Smart City Monitor platform. □ Uploaded to the proprietary platform □ Other, please specify Omission(s) of surveys (if any) N/A Specify variation in in use of equipment to monit The energy technicians and the external company were selected as they had experience and knowledge a qualified nurse and videos on how to record the di It was important for the project not to just record the Key Performance Indicators KPI DESCRIPTION	tor health indicators that was hired to record ge on similar projects. The fferent measurements we he health values but also b have on board multidisc PLANNED KEY	the health measures the health measures the staff was trained by ere provided. to keep participants iplinary professionals.	
Platform where the health data were uploaded data ☑ Uploaded to WELLBASED platform □ Uploaded to Smart City Monitor platform. □ Uploaded to the proprietary platform □ Other, please specify Omission(s) of surveys (if any) N/A Specify variation in in use of equipment to monitor The energy technicians and the external company were selected as they had experience and knowledge a qualified nurse and videos on how to record the dia It was important for the project not to just record the Rey Performance Indicators KPI DESCRIPTION	tor health indicators that was hired to record ge on similar projects. Th fferent measurements we he health values but also b have on board multidisc PLANNED KEY RESULT	the health measures e staff was trained by ere provided. to to keep participants iplinary professionals.	





		participants hard to do follow up as explained previously)
Risks that took place and what mitigation measu	ires were taken, other re	elevant actions:
List of risks that have taken place	Risk materialization and done	nd what have been
RISK 1. The participant doesn't show for the appointment	This risk was minimized appointment with time and the participant again what approaches. Several reminders sent Flexibility and adaptability availability. Continuation of health se of participation to competent	ed by arranging the nd then checking with hen the appointment for confirmation. ty to the participant's screenings after M12 ensate those missing.
Lessons learned and any replication tips for similar projects		

To train the professional properly to arrange all the meetings on time and record the measurements. It is important that the professionals are patient and can adapt to the participants timetables.

Show adaptability and flexibility. Use phone and chat for the immediacy of communication.

When observing anomalous health measures, advice the participant to reach their doctor for further analysis and diagnosis.

Send reminders for double confirmation the day before the appointment.

16.2 Data collection of comfort conditions at

home (T, RH and CO2 sensors)

Data collection of comfort conditions at home (T, RH and CO2 sensors)
Status of overall action
⊠ Finished
□ Other (please specify):
Stakeholders involved during the implementation
Damal Redes S.L.
Place where the T/H/CO2 devices were installed:
Living room (generally they have one room)
□ Kitchen
Bedroom





□ Other (please specify)

Number of devices distributed among study group

One device was installed in the room where the family spends more time - usually the living room. 130 devices were installed in total.

If number of distributed devices is other than number of participants in study group, provide explanations:

Seven households received an extra intervention from a different project [Socaire – Houses that are worth living in]. Three of them received significant improvements on insulation and cooling so, to measure those impacts we reseted and re-used three sensors coming from three dropouts to further measure the house values. Therefore, three houses had a second sensor to monitor T/H/CO2 in a different room thus, giving added value to the whole analysis and intervention.

Networks used for T/H/CO2 data transfer

🗆 LoRa

Sigfox

□ Private network (Data is already collected on cloud servers of the provider. Although the LoRa network is not used at the moment, it will be adapted to it.)

Model of the T/H/CO2 device

Milesight AM103L

How often T/H/CO2 data measured

once per 10 minutes

once per 15 minutes

once per 30 minutes

□ once per 60 minutes

Budget and resources (from WELLBASED project or from other sources) for T/H/CO2 devices

Under WB VCE budget for pilot deployment. Rented 130 sensors with local integrator, Damal Redes, 229 each one. Total budget for sensor rental: 29.770€

Describe in text how T/H/CO2 data collection process was organised

Firstly, the device correct functioning was checked by the provider, then the devices were installed in the participants home and checked with the provider to make sure that it was collecting data. Then, communication between the provider and the platform manager were stablished to provide the sensors codes to access to the data. If any issue happened the local provider immediately communicate it to VCE team to check physically at the participants home.

The sensors use the LoRaWAN frequency technology and Helium network They send each 15 minutes the data to the local provider, Damal Redes, and they turn them into the required format using the MQTT protocol.

Number of sensors installed	130		130
	RESULT		KEY RESULTS
KPI DESCRIPTION	PLANNED	KEY	IMPLEMENTATION
Key Performance Indicators			







Lessons learned and any replication tips for similar projects

Good communication between the local provider and the platform manager is needed in order to have a smooth integration of each of the sensors and to be able to tackle any issue promptly and avoid data loss.

Risks that took place and what mitigation measures were taken, other relevant actions:

List of risks that have taken place Ris	tisk materialization and what have been one
Risk 1. Sensor is deinstalled, turned off or lost	communication with the local provider on a
reg	egular basis was established and whenever
the	the sensor stopped sending data the
teo	echnicians were contacting the participants
to	to check in case something had happened.
Alo	Alongside with the consent form for
pa	articipation, households signed a
"co	commitment for the good us" of the sensor".
Gir	Give value to the role of the sensor for the
pro	roject, and for the participants as he/she will
be	e able to learn more about the house.
Se	Sensor model is small and not invasive. It was
loo	bocated discretely.

Lessons learned

Home sensors are a valuable way to measure the impacts on house values and comfort.

These values can provide a lot of information about the house conditions, usages and practices. They are also convenient to give personalized advice (ventilation hours, heating and cooling, how to deal with damp...).

Home sensors are valuable to evaluate the impact of renovations (efficient appliances, windows renovation, ceiling fans...) based on real and reliable data.

Participants valuate the LED light on the sensor, so it reminds them to ventilate and improve air conditions.

Participants were really interested about knowing the sensor data and its evolution through different seasons.

Explain participants how the sensor works so they do not distrust it (spying, listening...)

The Good Use Commitment signature document was an adequate way to stress the importance of having the home sensor located and treated properly.

16.3 Energy consumption

Energy consumption

Status of overall action





Finished

□ Other (please specify):

Stakeholders involved during the implementation of the action

Pylon Data

What information sources are used for energy consumption

□ Monthly access to electricity bill from participants

□ Asking for invoices of gas (grid)

□ Asking for receipts from gas (bottled), coal or other solid fuel.

□ Asking for other energy sources that were not paid by the participants (collection of

wood, coal provided by the state etc.)

Other, please specify (It is planned to directly access energy consumption data with the energy analyser)

Describe in text energy data collection process was organised including sub-actions if that was a case

Pylon Data is a monitoring software for energy consumptions (both electricity and gas).

This software allows to monitor the evolution of consumption for a period of a whole year of consumption. It has direct access to the electricity meter.

To create the profile, you must be the supply holder, meaning to have your name on the bills. This is a barrier as many rented people do not have their name on the supply contract but the owner's.

Before the M6 follow up visit, the Energy Coaches have asked in advance about this issue and asked participants if they wanted to create a profile. To do so, they need to gather as many past bills as possible (ideally one year but 2 or 3 can make it). Then, the Energy Coaches upload them into the platform and within an hour, the software creates a personalised report: evolution of consumptions, analysis on the price they are paying, potential savings, personalised advice according to the consumption tendencies... This is very valuable information as we can look for the previous 6 months before their participation in WB and 6 months after the intervention (bill optimization, energy efficiency kit, socio energy audit).

50 participants were eligible and agreed to create a Pylon Data profile to have their efficiency report. See example of a report below:



Funded by the Horizon 2020 Framework Programme of the European Union





Coste por energía consumida	109,50 €
Coste por potencia contratada	60,63 €
Coste por exceso de potencia	0,00 €
Coste por energía reactiva	0,00 €
Impuesto eléctrico 0,5%	0,85€
IVA 5% (sobre 170,98 €)	8,55€

Coste total anual (con IVA):

and the second s	
Tarifa	
2.0 TD	
Potencia contratada Pl 2,3 kW - P2 2,3 kW	
Periodo análisis 27/11/2022 - 26/11/2023	
Fecha informe 31/01/2024	

179,53€



Durante el periodo del análisis del informe, en base a tus consumos por periodos, has pagado la **energía de** media a 0,15 €/kWh

Puedes AHORRAR hasta ...

26,79 € al año

Figure 14 Pylon Data example of report (Valencia)



¿Cómo ahorrar en tu factura?

Ajusta tus potencias contratadas

Tras analizar los maxímetros reales registrados por tu contador, podemos sugerirte un ajuste de potencias que te permitirá un potencial ahorro de 27 € cada año



P2 - Pot. Sugerida P1 - Pot. Sugerida P2

Tus potencias actuales P1: 2,30kW P2: 2,30kW Tus potencias sugeridas P1: 1,30kW P2: 2,30kW*

*Ajustar potencia en P2 no aporta gran ahorro, se podría mantener la potencia contratada actual en P2, y aprovechar para trasladar consumos instantáneos al fin de semana.

F Información

P1











	also explain that it is very valuable information both for them and the project, putting it into value. Many people have gotten more interested into energy and consumptions after the first house intervention. Almost all participants meeting the requirements agreed to have their report.
 Participants do not understand their efficiency report 	Energy Coaches ask participants for the bills in advance, so the report is ready when they visit them in the second follow up visit. Once there, they provide a copy of their report and take their time to explain all the information and opportunities that Pylon has detected for saving. Participants can reach Energy Coaches later by phone or WhatsApp in case of further questions.

Lessons learned

Pylon Data has been a very valuable tool that have allowed us to further monitor bills and consumptions beyond the follow up questionnaires as well as the impact of the first interventions. Also, to learn more about the impact of the first house intervention.

People have gotten more interested into energy and savings after the first intervention. The more they understand, the more they want to know.

They have seen Pylon Data as a complementary report to help them take control of their consumptions and bills.

16.4 Evaluation Questionnaire

Evaluation Questionnaire		
Status of overall action		
⊠ Finished		
□ Other (please specify):		
Stakeholders involved during the impler	nentation	
Novus		
Place where the evaluation	⊠ Participants' home	
questionnaire took place:	□ Health Centre (please, specify)	
	□ Municipality premises	
	□ Other (please, specify):	
Data collection for evaluation questionnaire		
Questionnaire completed directly by participants.		
☑ Questionnaire completed by surveyors recruited by the pilot.		





□ Other, please specify

Describe the process

For the intervention group, VCE attended participant's homes for the first interventions that included the base-line questionnaire.

Participants were given a personal schedule with the programmed visits for the whole project duration (including those for health screening).

VCE technicians arranged the visits with participants to take the 6, 12 and 18 months questionnaires. The technicians were reminding participants about these visits the month before during the health screening visit.

For the control group, Novus was in charge of arranging the visits with participants to do the questionnaires.

In both cases, the data was recorded by the technicians and uploaded into the platform. Some of the questionnaires were taken on paper and then uploaded and some other were directly done on the platform through the technician laptop or tablet.

Also for both cases, there was continuous monitoring in an excel file with the ID of every participant and the questionnaires passed. Monthly reports and regular meetings took place with Novus to check the progress and any issue that may had happened.

Platform where the data for the questionnaire uploaded

☑ Uploaded to WELLBASED platform

□ Other, please specify

Budget and resources (from WELLBASED project or from other sources)

VCE hired two superior technicians (Energy Coaches) to gather T0, T1 and T2 (intervention group) VCE hired NOVUS, to do monthly health screenings and T3 (intervention group) as well as T0, T1, T2 and T3 for control group (and its recruitment)

Key Numbers	Т0	T1	T2	Т3	
	Baseline	6 months	12 Months	18 months	
Number of completed questionnaires from	143	116	112	113	
the intervention group					
Number of control group participants who	177	103	131	113	
took the questionnaire					
Number of completed questionnaires from	177	103	131	113	
the control group					
The estimated time required for	1h				
questionnaire before adjustments					
The estimated time required for	35-45 min				
questionnaire after adjustments					
Risks and mitigation measures:					
List of risks that have taken place	Actions that have	tions that have been performed			





1.	Participants get tired of answering the questionnaire	Indeed, it is long questionnaire and was reported accordingly after the T0 collection. The questionnaire was shortened and was valuated very positively by the participants in T1 follow up. Also, for the rest on the data collections, as the questionnaire was already explained and understood it was quite more agile.
2.	Some participants are difficult to reach for follow ups	As already explained, some participants are harder to reach, especially due to depression or health problems, and they do not want to receive visits. Energy Coaches and Novus must be very supportive and empathetic and offer alternatives to collect the data. Explain the importance of their participation and answers and make them feel valuable for the project.
3.	Some participants were difficult to meet for T3 collection as they were tired of answering the questionnaire.	Adapt to their availability as much as possible. Explain the participant that it is the last collection, and it will allow the investigators to have the full picture of their participation. Explain the data collection is key for the investigation and their answers are very valuable to improve health and wellbeing. It also allows us to check if our interventions had any positive effect on their wellbeing and, therefore, improve for the next initiatives. Offer incentives (basket, fans).
4.	T3 collection took place during summer (holidays) months	This has been challenging as many participants did not have the same availability, especially if they have to take care of the kids or if they leave the city to visit their family. Also, taking into consideration the extreme heat suffered in summer, people have less energy or do not want to receive visits at heat peak times (from $12 - 18.30$ approx.). This makes more difficult to organise the appointments. The key has been communication with participants and asking them way in advance (weeks or even 1 month) if they are going to be available for the data collection and organise with them accordingly. Explain them the importance of this final data collection.

Lessons learned





Good communication with participants is key to be able to arrange the meetings and record the questionnaires on time.

Monitoring and planification is also needed to be able to record all the data from all participants.

Make questionnaires agile, easy to understand and non-repetitive for the participant might get tired and won't provide accurate answers.

Explain thoroughly the participants what they will have to answer so they are aware about all the data collection needed.

Be adaptative and flexible with the most vulnerable participants, especially those with anxiety or depression are harder to follow up.

The lower number in the Control Group between the T0 and T1 is because many participants were unstable on the city and moved away when the T1 started. It also happened between T0 and T1 for the Intervention Group. A valuable lesson learned is to recruit people that have stability and roots in the city and are planning to stay the whole duration of the project. In most cases, drops outs were because participants were moving out of the city.

Finally, offer incentives for engagement during the project (vegetable and fruits basket) - specially the Control Group as they do not receive any intervention for their participation, and just answer questionnaires.

When collecting data during summer or holiday season, plan way in advance with participants and ask about their availability.

16.5 Qualitative surveys

Qualitative surveys				
Status of overall action				
20 different people were interviewed qualitatively during the project, the first batch of 14 people took place from April to July and the second batch of 13 people took place during the next winter. Most of the interviews were done to the same households, but is some cases it was not possible, therefore new households were invited to participate in the qualitative interview. The interviews were arranged by VCE technicians with the participants and 2 people were conducting the interview, one was a known person for the participant (VCE technician) and the other a technician from Las Naves.				
Stakeholders involved during the implementation				
UnivLeeds				
⊠ Participants' home				
□ Health Centre (please, specify)				
□ Municipality premises				
t, r ri t				







	□ Other (please, specify):			
How often qualitative surveys took place				
2 interviews were done during the intervention period				
Platform where the data for the qualitative surveys is uploaded				
Uploaded to WELLBASED platform				
☐ Other, please specify				
Budget and resources (from WELLBASED project or from other sources)				
The interviews were done by VCE and Las Naves employees in Wellbased project				
Key Numbers				
Total number of qualitative surveys conducted through the implementation phase	24			
Number of completed qualitative surveys at the beginning of the implementation (1 st round)	14			
Number of completed qualitative surveys later (2 nd round)	13			
Number of professionals who performed qualitative surveys	6			
Risks and mitigation measures:				
List of risks that have taken place	Actions that have been performed			
 People feel ashamed of sharing their experience in an interview 	The presence of the Energy Coaches during the interview (someone who they trust) was key to make them feel comfortable during the interview. Also explain that we will only record voice and that it is more like an informal conversation rather than a formal interview. It will be anonymized after that. Listen to them, care about them, show sensitivity and ask questions carefully and with delicacy.			
Lessons learned				

Involve a "known" person in the interview process is key for the participant to be comfortable so he/she can share as much information as possible. Generate a good-trusting environment being friendly and caring is needed for the success of the action. Active listening, creating a safe space, be approachable and closer to the person. Show empathy and sensitivity, not judging the person.