



D2.4: Reports from the focus groups created

“Poor them, they are just like us”

WP2 – T2.4 Focus groups on co-creation to design the Wellbased interventions

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List of acronyms

- EC – European Commission
- EPOV – Energy Poverty Observatory
- EU – European Union
- FG – focus group
- H2020 – Horizon 2020
- WB - Wellbased
- WP – Work Package

Summary

Background information

This report is part of the H2020 funded Wellbased project and written by WB project partner TNO (The Netherlands Organization for applied scientific research). This project started in 2021 and aims to tackle health issues related to energy poverty by testing an urban intervention programme in seven European pilot cities: Valencia (Spain), Heerlen (Netherlands), Leeds (UK), Edirne (Turkey), Budapest (Hungary), Jelgava (Latvia) and Skopje (Macedonia).

For whom is this report interesting?

Although this report has particular relevance for the development of the interventions in the WB project, this report is interesting for those who are interested in co-creation and focus group research, and those interested in the challenges of energy poor households and energy poor households' suggestions for measures to support them.

Energy poverty in Europe and Wellbased ambitions to tackle it

Energy poverty is a major urban and societal challenge, as this condition affects around 54 million European households. These households have inadequate access to energy services, causing them to deal with extreme heat, cold, damp, mold or draught. This significantly impacts people's health and wellbeing; various studies show that low indoor temperatures or poorly insulated houses are associated with residents suffering from respiratory diseases, joint aches, heart attacks and various mental disorders.

The Wellbased project aims to develop innovative approaches to alleviate energy poverty and its impact on health issues. In order to do so, the project develops and tests the so-called WB urban programme. This programme includes multiple interventions that aim to reduce energy poverty and will be tested in the seven European pilot cities.

Relevance of the present study

In order to define the urban programme and its interventions, focus groups with energy poor households were held between October 2021 and January 2022 in all seven pilot cities. In these focus groups, households discussed challenges they encounter in their daily life, as well as measures that would help them to improve their living situation. Importantly, the first ideas on WB interventions are discussed in the focus groups as well. Focus group participants evaluated them and were given the possibility to make suggestions for improvement of the



WB interventions. This allows the target group to co-create the interventions, realizing optimal effectiveness in supporting them and decreasing energy poverty.

Research questions and goals of the present study

All in all, the goals of the WB focus groups are to get insight in:

- 1) the challenges of energy poor households;
- 2) the measures energy poor households would need to feel supported by to improve their living situation;
- 3) how energy poor households evaluate the planned WB interventions and, if necessary, how the WB interventions can be improved to reach optimal effectiveness in reducing energy poverty.

To get insight in these issues, this report aims to answer the following questions:

- 1) Do the interventions, as developed in the Wellbased urban programme, match the needs and wishes of energy poor households in seven pilot cities?
- 2) How does the input of participants in the focus groups shape the interventions of the Wellbased urban programme?

Results

Seven focus groups were held in seven different European cities. In total, 38 participants participated in the WB focus groups (23 females and 15 males, *Mage* = 46 years old). The challenges of focus group participants were overall very similar and primarily related to their poor housing conditions and poor financial abilities. This was also reflected in their needs and wishes: many participants indicated they would prefer to receive support to improve their financial abilities and to improve their housing condition. Fortunately, most WB interventions address these needs (e.g., energy saving advice, housing renovations) and in line with this the WB interventions are evaluated positively by participants. The focus group participants also provided some good suggestions to improve the interventions. Their suggestions were mainly related to the responsibilities of different parties involved and their communication styles.

Conclusion

The WB focus groups provided an excellent method to retrieve insight into energy poor households' challenges and needs, and created a moment of reflection for WB project partners and households. Three key issues that, based on the focus groups, proved to be important are: building trust and communication, listening to the target group you are designing an intervention for and most important: the WB interventions have the potential of improving people's lives.

1. Introduction

1.1 Energy poverty in Europe and Wellbased ambitions to tackle it

In Europe, around 54 million households live in energy poverty¹. This means that nearly 11% of the European citizens do not have adequate access to energy services (Sareen et al., 2020). These citizens struggle to adequately heat their homes because of unaffordable energy costs and, often, energy inefficient housing (e.g., poorly insulated housing). As a consequence, energy poor households often live in cold homes, dealing with mold, damp, draughts and/or drafts (Balfour & Allen, 2014; Liddell & Morris, 2010). This significantly impacts people's health and well-being; various studies show that low indoor temperatures or poorly insulated houses are associated with residents suffering from respiratory diseases, joint aches, heart attacks and various mental disorders (e.g., depression, anxiety; Balfour & Allen, 2014; Jessel, Sawyer, & Hernández, 2019; Liddell & Morris, 2010; Platt, Martin, Hunt, & Lewis, 1989). Unfortunately, these are not the only issues that energy poor households are dealing with. Energy poverty is multidimensional problem, which is visualized in Image 1 (Straver et al., 2020).

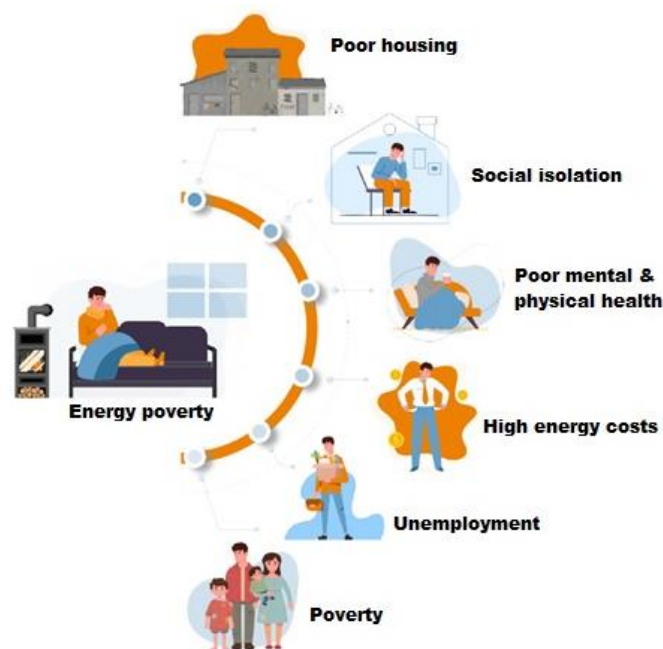


Image 1. *Energy poverty is part of a vicious circle.*

Because of the rising electricity prices and Europe's poor energy performance in the building stock², the prevalence of energy poverty is increasing. Europe is thus presented with a major challenge to fight energy poverty. To tackle energy poverty and its effects on citizens' health and well-being, several efforts have been made. For example, multiple EU directives and

¹ See: https://ec.europa.eu/energy/news/energy-poverty-may-affect-nearly-11-eu-population_en?redir=1

² See: https://ec.europa.eu/energy/news/energy-poverty-may-affect-nearly-11-eu-population_en?redir=1



articles are focused on combatting energy poverty, such as Energy Efficiency Directive (EED) article 7, Governance Regulation article 24 and Governance Regulation article 21 (lid c)³. Also, the European Commission initiated the EU Energy Poverty Observatory (EPOV)⁴ in 2016. This 40-month project aimed to facilitate exchange of energy poverty knowledge and policy in Europe. Nowadays, the EPOV has been moved into the Energy Poverty Advisory Hub (EPAH); an online platform on which knowledge, best practices and research results on energy poverty are publicly accessible⁵.

In addition to these examples, the Wellbased project (WB project) is initiated in 2021 to develop and test a so-called urban programme to tackle energy poverty. The WB project is H2020 funded and it's programme includes the development of multiple energy poverty interventions that will be tested in seven European pilot cities⁶. These interventions aim to alleviate energy poverty and its effects on health and wellbeing amongst the most vulnerable and disadvantaged energy poor households.

In order to do so, the WB urban programme adopts an approach based on the social ecological model (Dahlgren & Whitehead, 1991). This model, also known as the "Dahlgren-Whitehead Rainbow model", is based on the notion that an individual's health is determined by the interaction between individual factors (e.g., age, sex), social factors (e.g., social network), economic factors (e.g., employment) and physical environment factors (e.g., housing). Image 2 shows an illustration of this model. In line with this model, the interventions included in the WB urban programme will target several layers of influence; individual, interpersonal, community and organizational and public policy targets.

³ For more information see: <https://www.odyssee-mure.eu/publications/policy-brief/european-energy-poverty.pdf>

⁴ See https://energy-poverty.ec.europa.eu/discover/practices-and-policies-toolkit_en?f%5B0%5D=oe_publication_title%3AEPOV

⁵ See https://energy-poverty.ec.europa.eu/index_en

⁶ The pilot cities are: Valencia (Spain), Jelgava (Latvia), Edirne (Turkey), Heerlen (The Netherlands), Budapest (Hungary), Leeds (UK) and Skopje (Macedonia)



Image 2. *The social ecological 'rainbow' model by Dahlgren and Whitehead (1991).*

1.2 Relevance of this study and its co-creation design

The general urban programme and its interventions will be based on a systematic review of existing interventions already put to practice in Europe and WB partner countries. Importantly, in order to adopt this general programme (i.e., the programme based on the systematic review of existing measures and policies) to each pilot cities' specificities (e.g., climate conditions, welfare states models), focus groups with energy poor households will be held in each pilot city. In these focus groups, challenges of energy poor households will be explored, as well as measures they would feel supported by. In addition, the WB interventions (as developed in the general framework) will be evaluated by participants of the focus groups. Therefore, the focus groups allow to answer the following research questions:

- 1) Do the interventions, as developed in the Wellbased urban programme, match the needs and wishes of energy poor households in seven pilot cities?
- 2) How does the input of participants in the focus groups shape the interventions of the Wellbased urban programme?

By answering these questions and talking to energy poor households, the target group (i.e., energy poor households) is allowed to co-create the interventions, realizing optimal effectiveness in supporting them and decreasing energy poverty.

What is a focus group?

A focus group is a qualitative research method in which several individuals of a target group (usually six to eight) have a conversation and discussion on a certain topic (Wilkinson, 1998). This discussion is semi-structured and led by a so-called moderator. A focus group is an excellent research method to get profound insight into the experiences and perspectives of a target group, as it allows individuals to share their *own* perspectives on their living situation. Another important characteristic of focus group methodology is the interactive aspect: data is collected by the mutual discussion that arises between participants of a focus group (Wilkinson, 1998). Incorporating focus groups into the Wellbased project thus allows to deepen experiences and challenges of energy poor households.

The focus groups thus use a co-creation approach in order to shape the WB interventions to best fit the needs and wishes of the energy poor households. This is innovative as to date only few studies have examined energy poor households' experiences (e.g., Grey, Schmieder-Gaite, Jiang, Nascimento, & Poortinga, 2017; Middlemiss & Gillard, 2015; Middlemiss, 2020; Tod et al., 2013), let alone energy poor households' perspectives on manners to support them. It is important to retrieve insight in this, as interventions that fit the user's needs and wishes may be more feasible to implement and have more sustainable effects (Fischer, Safaeinili, Haverfield, Brown-Johnson, Zions, & Zulman, 2021).

1.3 Relation of Wellbased focus groups to the Wellbased project

In order to successfully develop, implement and test the WB urban programme and its interventions, the WB project is divided into seven Work Packages (WPs), which can be divided into four project phases:

1. Design of the urban programme to reduce energy poverty and its effects on health and well-being.
2. Implementation of the urban programme in the project pilots.
3. Evaluation and policy recommendations.
4. Research and exploration of new business models and alternative ways of financing the urban health interventions aimed to tackle energy poverty.

Table 1 shows an overview of all WPs and image 3 illustrates how the WB focus groups contribute to the WB project. Although each WP and phase includes its own attention points and objectives, all contribute to the overarching goal of tackling energy poverty. The WB focus groups, and thus this report, are part of WP2. This report has particular relevance for the WB project as it includes the definition of the urban programme framework to pilot cities' specificities.

Work package (WP)	Description
1 – Project Management	This WP monitors administrative and financial issues and checks whether all activities are performed according to the plan .
2 - Definition of the urban programme framework & adaptation	This WP defines the general framework of the urban programme and adapt the common framework to each pilot's specificities. <i>The WB focus groups are part of this WP.</i>
3 – Pilots preparation & implementation	This WP carries out all preparatory implementation activities and implements the urban programme in the seven pilot sites.
4 – Evaluation & data analysis	This WP evaluate the programme's interventions in terms of health effects and cost-effectiveness.
5 – Policy recommendations, scale-up & transferability	This WP investigates alternative financing models to tackle energy poverty, as well as interventions' scalability and replicability for other cities and contexts.
6 – Dissemination, communications, city engagement and exploitation	This WP aims to enhance the WB project impact through dissemination and communication.
7 – Ethics & Data protection issues	This WP ensures that all ethical, security and data protection issues are adequately dealt with.

Table 1. Overview of all work packages in the Wellbased project.

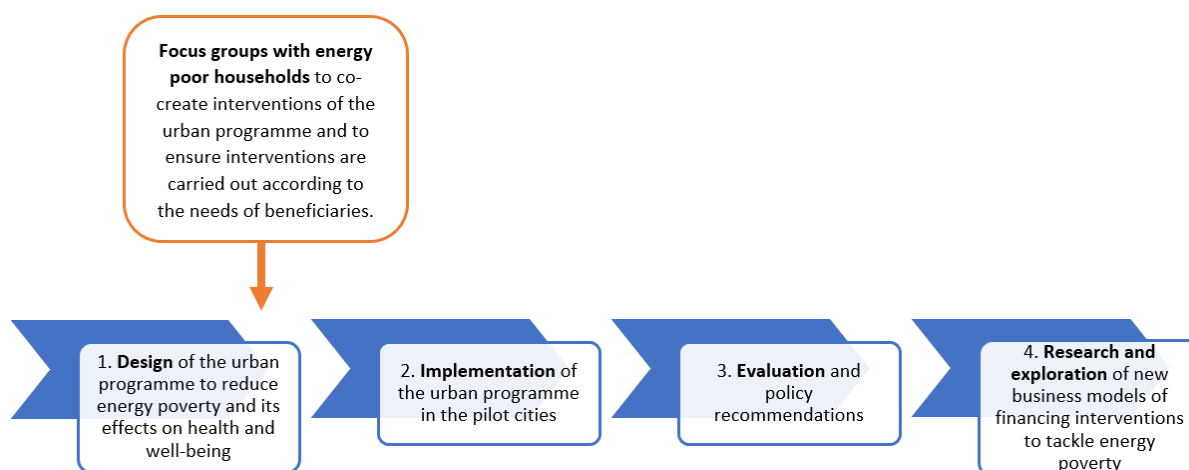


Image 3. The four phases of the Wellbased project and contribution of the focus groups.



1.4 Goals and research questions of this report

All in all, the goals of the WB focus groups are to get insight in:

- 1) the challenges of energy poor households;
- 2) the measures energy poor households would need to feel supported by to improve their living situation;
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1.5 Structure of this report

This report first explains the process of creating the content and structure for the WB focus groups (Chapter 2). Subsequently, results of the focus groups and differences and similarities between different pilot cities are discussed (Chapter 3). Finally, conclusions are drawn on how the WB interventions address the needs of energy poor households and how partners in pilot cities changed (or will change) their planned interventions based on the focus groups' input (Chapter 4).

2. Methods used: from ideas to Wellbased focus group

This chapter describes the process of creation of the WB focus groups by Wellbased partner TNO (The Netherlands Organization for applied scientific research). First, it is discussed which steps are taken to create the structure and guideline for WB partners that perform the WB focus groups (paragraph 2.1). Subsequently, the content and set-up of the WB focus groups is explained (paragraph 2.2). Finally, it is discussed how partners in pilot cities reported their focus group results back to TNO (paragraph 2.3).

2.1 Steps in the process

In order to develop the WB focus group structure that was appropriate and effective for all seven partners in pilot cities, several steps have been taken. These steps are described below and ultimately led to the creation of the WB focus group guideline. This guideline was provided to all partners in the seven pilot cities and described the structure, goals, questions and additional information for the WB focus groups. Image 5 shows an overview of all steps in setting up the WB focus groups. The subparagraphs below describe these steps in more detail.

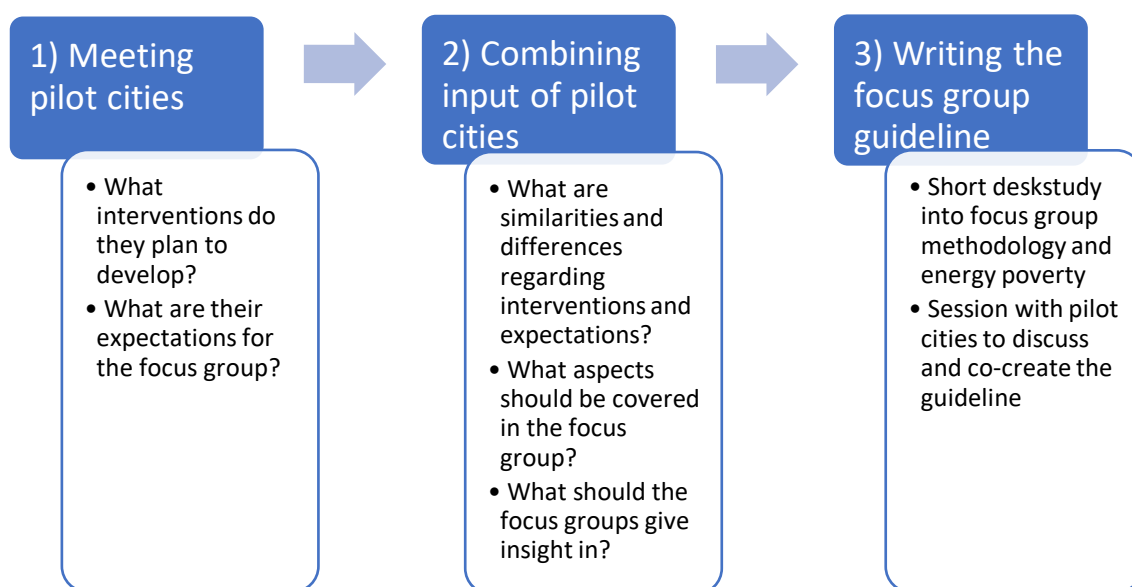


Image 5. Steps in the process of creating the WB focus groups.

2.1.1 Explorative meetings with pilot contacts

The first step in the process was to meet the partners of all seven pilot cities and discuss their interventions and expectations for the focus group. These explorative meetings gave insight in:

- 1) The interventions pilot cities plan to do;
- 2) Pilot cities' experience with focus groups;

- 3) Pilot cities' goals and expectations of the focus groups;
- 4) Pilot cities' expectations from TNO with regards to our assistance for the focus groups and writing the final report.

Importantly, these meetings also set in motion engagement of the WB partners with the target group, other potential stakeholders and partners of the WB project. For an overview of the general findings of the exploration meetings see Annex 1. For an overview of the pilot cities' interventions see Annex 2.

2.1.2 Combining input of pilot contacts

The input that was gathered during the explorative meetings led to two documents: one summary describing the planned interventions per pilot city (see Annex 2) and one summary describing expectations and other issues related to the focus groups (see Annex 1). This latter document was of particular relevance in developing the focus group structure and guideline, as it gave insight in expectations, goals and focus group experience, as well as a planning of when pilot cities were able to organize the focus groups. Table 2 below shows an overview of the most important goals and expectations for the seven WB focus groups (for the complete overview see Annex 1).

Table 2. Goals and expectations for the WB focus groups.

The WB focus groups should allow to:

- Collect (different) perspectives on energy poverty: Which problems do energy poor households face and do they realize these problems are related to energy use? What does energy poor households bother most? Which issues should be prioritized?
 - Gain insight in common and different problems and challenges of energy poor households in different pilot cities.
 - Validate the general WB framework and its interventions
 - Adjust plans for the WB interventions according to feasible suggestions and ideas of energy poor households.
 - Gain insight in aspects of the WB project about which energy poor households are enthusiastic.
 - Make comparisons between pilot cities regarding the challenges of energy poor households and the improvements they suggest.
-

2.1.3 Design of the focus group guideline

Based on the input of pilot cities it was decided that the WB focus group guideline, as prepared by TNO, should include the following:

- Some general information on focus group methodology (e.g., examples of how to chair and execute a focus group, required number of participants);
- Information on points of discussion; what are the right questions to ask? What will be the general questions all pilots should ask during their focus group session?;
- Information on the structure of the WB focus group (i.e., how to open the focus group, the order of the topics to be discussed, how to close the focus group session);

- Templates to report the output and results of the WB focus group.

In addition to the input retrieved during the explorative meetings with pilot cities, a short desk study was performed to get insight in the current state of the art regarding focus groups and energy poverty. This allowed to include background information on focus group methodology. When the first version of the guideline was finished it was discussed with project partners in Leeds and Edirne, as they have extensive experience with conducting focus groups.

To engage pilot cities with the WB focus group and to allow all pilot cities to co-create the set-up of the focus groups, a reflective session with all pilot cities was organized to discuss the draft version of the guideline. This included the content and set-up of the focus group, as well as the usefulness of the guideline. Pilot cities were thus allowed to comment on the guideline to make final adjustments.

2.2 Final set-up and structure of the WB focus groups

The input of pilot cities, as well as the short desk study led to the decision to divide the focus group into two parts:

- 1) **The exploration part.** The goal of the exploration part is to get insight in how people are affected by energy poverty.
- 2) **The engagement part.** The goal of engagement part was to get insight in what participants need and what their priorities are to improve their living situation.

The exploration and engagement part are both described in more detail in the paragraphs below. Both for the exploration and engagement part, many images were used to support the discussions of participants. This was deliberately decided as energy poor households are significantly more often illiterate than non-energy poor households (see e.g., Apergis, Polemis, & Soursou, 2021). By using images, we tried to increase familiarity and made it easier for participants to understand the topics discussed.

Importantly, the focus group started with providing participants stories of people in similar situations and asking participants to reflect on their recognition of these stories. We considered this part to be important, as it might help to overcome uncomfortable stigmatizing feelings when sharing own experiences.

2.2.1 The exploration part: exploring challenges of energy poor households

This part is aimed at getting a detailed view on the problems energy poor households face and what participants of the focus group struggle with most. This discussion was started by providing participants stories of energy poor households (i.e., personas). Some of these personas were provided by TNO and some were created by partners of pilot cities (see Annex 3 for an overview of these personas). The personas provided by TNO are based on previous research into characteristics of Dutch energy poor households. The personas created by pilot city partners are based on partner's experience with energy poor households and their

characteristics. By using personas provided by both TNO and pilot city partners, we aimed to illustrate that energy poverty is an issue all around Europe (i.e., personas provided by TNO), while creating recognition and familiarity as well (i.e., personas created by pilot cities).

The personas helped the participants to get familiar with the problems that other people in similar positions often encounter and overcome feelings of shame sharing their own experiences. After this, participants were asked to indicate which problems in these stories they recognized. We used images showing experiences that energy poor households often deal with. The participants used stickers to select the images that fit their situation. See Image 6 below for some examples of these images. During this part, participants were asked to share and explain their experiences. In addition, participants were asked whether they are dealing with other issues not described in the stories and images.

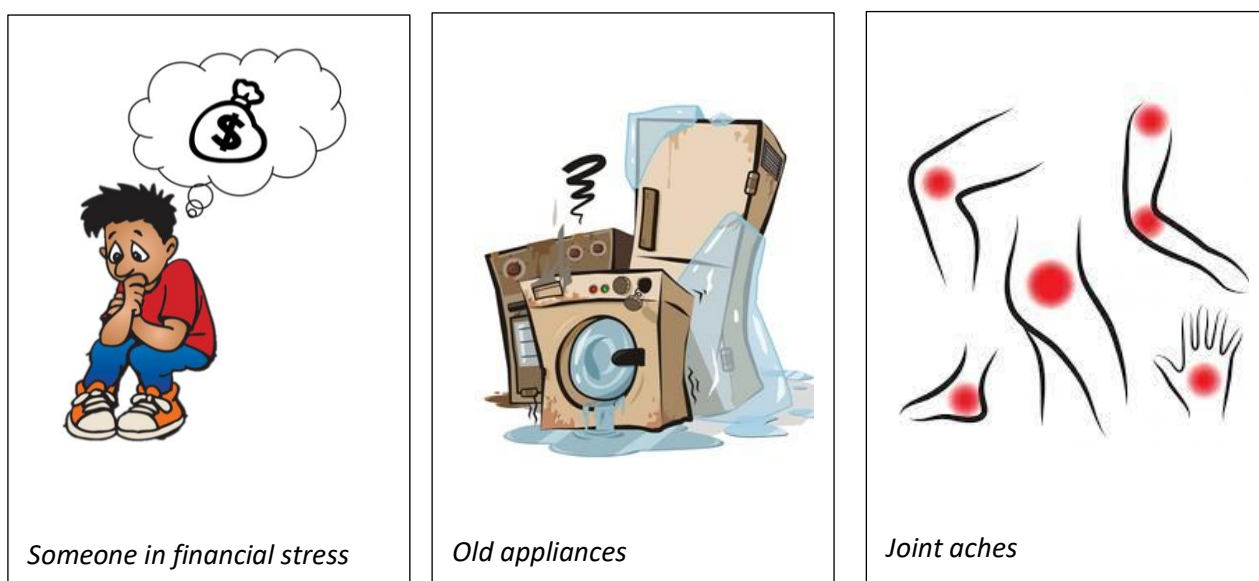


Image 6. Examples of images used in the exploration part.

2.2.2 The engagement part: people in energy poverty have a say

After participants discussed the challenges and issues they face in daily life, they were asked to elaborate on what solutions could improve their living situation and how they would prioritize these solutions. Again, images were used and participants were asked to put stickers on the improvements that they prioritize (see Image 7 for some examples). Participants explained their answers and were asked to address improvements not presented by the images. Subsequently, participants were provided with information on the WB interventions and participants were given the opportunity to comment on the interventions. To facilitate this discussion, participants were asked questions such as: “What issues do you think the WB interventions would solve for you?” and “What are your suggestions to improve the WB interventions?”.

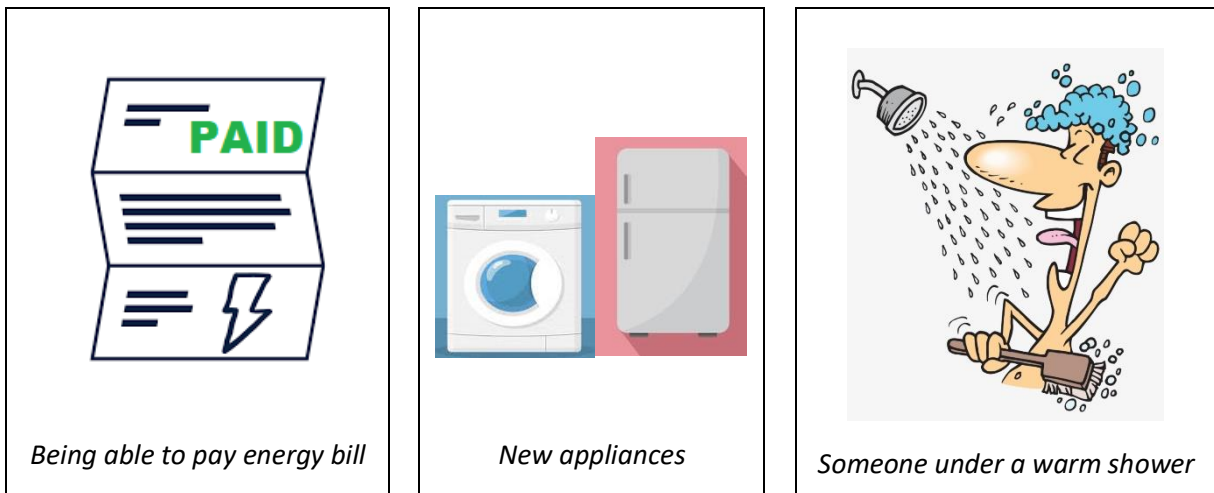


Image 7. Examples of images used in the engagement part.

2.3 Reporting focus group results

The WB focus group guideline also included a chapter on reporting results. All pilot cities were provided with a results format that was divided into three parts: results from the exploration part, results from the engagement part and results from participants' feedback on the WB interventions. Each part included a table which allowed pilot cities to structure their results into the topics discussed. Also, providing an identical results format to all pilot cities allowed us to easily structure and compare results of different pilot cities. The results format is included in Annex 4.

3. Results

3.1 Sample characteristics

Each pilot city conducted one focus group, meaning that seven focus groups were organized in total. The participants ($N = 38$) were all members of energy poor households and were recruited by WB project partners via social organizations or energy support networks. Of all 38 participants, 15 were male and 23 were female. Ages ranged from 23 to 77 years old ($M = 46$, $SD = 13.49$). Table 3 shows an overview of the participants' characteristics per pilot city.

As can be seen in table 3, the sample characteristics of Budapest participants are divided into two samples (i.e., 'FG' is focus group and 'int.' is interview). This is because Budapest decided to perform interviews in addition to the focus group. The Budapest focus group participants turned out to be not completely representative, since older aged participants with no children did not participate. Therefore, the researchers organised separate interviews to complement the focus group results with the experiences and viewpoints of older aged participants with no children.

<i>City</i>	<i>Sample size</i>	<i>Mean age</i>	<i>Gender</i>
<i>Jelgava</i>	$n = 5$	48 ($SD = 12.38$)	3 Females, 2 Males
<i>Valencia</i>	$n = 4$	46 ($SD = 14.42$)	2 Females, 2 Males
<i>Edirne</i>	$n = 8$	40 ($SD = 14.07$)	3 Females, 5 Males
<i>Budapest (FG)*</i>	$n = 5$	46 ($SD = 9.76$)	3 Females, 2 Males
<i>Budapest (int.)**</i>	$n = 4$	57 ($SD = 14.22$)	4 Females, 0 Males
<i>Heerlen</i>	$n = 5$	56 ($SD = 19.18$)	1 Female, 4 Males
<i>Leeds</i>	$n = 3$	<i>unknown</i>	1 Female, 2 Males
<i>Skopje</i>	$n = 7$	39 ($SD = 4.86$)	7 Females, 0 Males
Total	$N = 38$	46 ($SD = 13.49$)	23 Females, 15 Males

Table 3. Characteristics of the focus group participants for each city.

* FG summarizes the focus group sample characteristics.

** int. summarizes the interview sample characteristics.

3.2 Challenges of energy poor households: similarities & differences

Nearly all participants of the seven pilot cities recognize the challenges that are described in the created fictive personas that were part of the first part of the focus group (see Annex 3 for the personas). One of the reactions of the participants in Edirne illustrates this observation well: "Poor them, they are just like us".

Although most challenges are similar to what participants of the focus groups encounter, the degree to which participants experience certain challenges is sometimes a bit different between participants and between pilot cities. Below it is described what challenges are



similar for energy poor households in the seven pilot cities (paragraph 3.2.1), as well as the challenges that are specific to energy poor households of particular pilot cities (paragraph 3.2.2).

3.2.1 Commonalities of European energy poor households' challenges

Poor housing: rule rather than exception

In nearly all pilot cities, households indicate that their homes, or at least parts of it, are in a bad condition. They mention examples of bad insulation, old roofs, windows that do not close properly and issues of damp and/or mold on walls. This causes participants to experience a low level of living comfort, as they often experience cold or extreme heat and a dry or humid indoor climate. One participant in Valencia mentioned that the dampness in her room is often so bad that she takes off the bed sheets and scrapes the walls to get rid of the dampness. Another participant in Jelgava mentioned that their roof is insulated very poorly which can be clearly seen on the wood that is lying there: "During spring the wood is wet and you can see the mold growing".

Financial burdens and their adverse impact

One issue that all participants mention is the challenge to pay energy bills and the stress that they experience because of that. Many participants agree that financial worrying significantly impacts their stress level and overall well-being. In Leeds and Heerlen, participants are particularly concerned with the rising energy costs and their increased difficulty to pay energy bills in the near future. Interestingly, participants in Heerlen connect their financial stress to their historic past. All participants of the Heerlen focus group live in Heerlen-Noord, where in the 1970s all coal mines were closed. This had, and still has, detrimental effects on the socio-economic welfare of the residents living there. One participant describes this influence as follows: "The mining past leaves deep traces that people still suffer from, especially in Heerlen-Noord where people are still living in old miners' houses of unemployed generations". Another participant tells: "Where your cradle is determines your chances".

Because of households' financial worrying, many participants argue they try to minimize their energy costs by heating only one room, warming themselves with blankets, going early to bed and only plugging in the necessary electrical appliances among others.

The causes of stress

Strikingly, it seems reported stress is mainly related to financial debts and to a lesser extent to being exposed to unhealthy situations (i.e., mold, cold and damp causes an unhealthy indoor climate). There is no mentioning of stress due to health issues caused by mold or other bad housing conditions; it seems as a separate physical problem, that is more of a given fact and not stress related. This might be caused by the time that passes before participants experience these health consequences. Not having enough money directly impacts one ability to pay the energy bill, while dealing with mold and damp impacts on health over the long term and seems to have less direct impact. In addition, people might be used to their poor housing condition and their poor health. The project partner in Jelgava explains that: "Lack of qualitative houses has always been the problem in Latvia. So, hypothetically, we could say that people have got accustomed to such circumstances and this is nothing extraordinary for them. They see that their health issues may be solved by money primarily, not by improving their living situation".



The absence of work stress

One issue that was expected to play a role in participants' daily lives, but which was not recognized as such by participants was work stress. We hypothesized that energy poverty would be related to work issues: because people are confronted with mold, heat stress or long-term cold in their homes, they get sick and cannot go to work, or work less. However, this relationship is not mentioned by participants. This can be explained by the fact that many participants indicated that they are happy to have a job: "at least I can make some money". In addition, there was a considerable number of participants that were retired. Obviously, work stress does not play a role among these participants as well.

Energy poverty is concentrated in social networks

Another commonality in the focus groups, is that many participants know other people in their community or neighborhood that are dealing with similar challenges as presented in the personas or by the images of the exploration part. These are often poignant cases, where many participants know people in worse conditions than they are. For example, one participant in Leeds mentions a neighbor who stays in bed for large parts of the day because he wants to stay warm and cannot afford to put the heating on. Another example came from a father who said his child cannot invite his friends to come play because of the cold in their home.

3.2.2 Energy poverty does not have the same shape everywhere

Health impacts: choosing between health or financial savings

Participants of various pilot cities explain they suffer from health issues, such as joint aches, colds, rheumatism, and respiratory issues. Many of these participants seem to relate their health issues to the condition of their homes. One striking example of this is addressed by participants in Edirne. Edirne participants explain that they sometimes collect different types of material that they can burn to heat their homes: "We collect and burn whatever we find; plastic, shoes, brushwood...". At the same time, the choice between health and financial savings is not that simple and not similar for everyone. A participant in Budapest for example argued that she rather spends money on energy so that her daughter does not have to suffer from health issues caused by the mold. Only participants in Jelgava and Skopje did relate their health issues to their housing condition. These participants seemed to be bothered most by their insufficient incomes and addressed that as main cause for unaffordable treatments and thus unresolved health issues.

The dangers and worries of old appliances

Participants in Jelgava and Budapest are much more concerned with the old appliances in their homes than participants of other pilot cities. Participants in Jelgava and Budapest particularly worry about the risks (e.g., old stoves increase the chance of fire hazards) and high energy consumption of their appliances (i.e., high consumption means high energy costs), as well as the costs they might need to pay when one of their appliances break down. In some other pilot cities, such as Heerlen and Leeds, participants express their wishes to have more energy efficient appliances, but they cannot afford it as they are financially impoverished.

Energy poverty can either disunite or unite people

In addition, being socially isolated is a theme that was mentioned by participants in varying extent. Participants in Skopje and some participants in Heerlen and Valencia rarely invite

guests at their homes due to cold and the bad condition of their house. One poignant example in line with this issue is illustrated by a participant in Valencia, who argued that she would like to put on the TV to keep her company, but she doesn't do this as she is afraid for the electricity costs. Another aspect of social isolation is how children of the focus group participants are affected by it. An example comes from a participant who says his child cannot have friends over because it is too cold for them to play in their home. However, social isolation is not an issue for everyone. For instance, participants in Edirne even stress the closeness of their Roma community.

3.3 Participants' needs and wishes

The need for adequate financial ability and decent housing

During the focus group, participants also talked about their wishes to improve their living situation and what challenges related to energy poverty they would like to tackle. In general, participants of different pilot cities addressed two important needs to improve their living situation: enhanced ability to pay their bills and a renovated (or better insulated) house.

Both would alleviate energy poor households' living situation for several reasons. First of all, anxiety about not being able to pay for energy bills is ever present for all participants, causing a lot of stress that significantly impacts their well-being. In Jelgava, one participant argues that "paid bills means no penalties, enabling her to live peacefully". In some cases, financial stress also affects the mutual relationship of family members, as not all members are equally attentive on saving energy in order to cut energy costs. One participant is sometimes relieved when her children go to summer camp: "When my children go to summer camp, you can immediately see it on the energy bills".

Second, one's ability to pay the energy bill is related to the housing condition as well; better insulated houses are more energy efficient than houses that are poorly insulated. This is not the only advantage of a renovated house. A side effect of renovated housing includes benefits to people's health: less issues with heating, cooling, draught and mold will improve energy poor households' health as well. These are different aspects on how to alleviate energy poor households' living situation.

The need for long term solutions

Importantly, participants argue that they wish to be supported to improve their living situation on the long term. A better insulated house is in line with this wish, as this helps energy poor households to improve their ability to pay the energy bill on the long term (if energy is not overconsumed). In addition, this helps to improve residents' health on the long term (i.e., less mold, cold etc. increases resident's health).

The need for a happy family

Various participants with children also related their needs to be relieved from their issues to the importance of being a happy family. Various participants mention that issues such as stress and health problems are "the biggest enemies" of a happy family. Having to deal with stress frequently puts pressure on families' overall wellbeing and happiness. This is unfortunate, because a happy family is very important to many participants: "My priority is a happy family. If my family is happy then I am happy".

The need for empowerment

In several pilot cities, participants expressed their need to be empowered. In Heerlen, Valencia and Budapest, participants argued that they would like to have more knowledge on how to use electrical appliances in an energy efficient, and thus cost effective, manner. In Valencia and Heerlen, the wish to be empowered also translates in the need for knowledge on subsidies for installing energy saving measures (e.g., solar panels) and the need to be unburdened when it comes to subsidies that are available. This illustrates that participants are definitely willing to improve their situation, but that it is important to provide this target group with easy accessible and understandable information and knowledge on how to do so.

The need for trust

An issue that was mentioned by Budapest participants is the need for a better relationship with their landlord (i.e., the municipality). Participants in Budapest indicated they do not feel treated as equals, leading them to experience distrust and not daring to ask for help when dealing with poor housing conditions. This lack of trust was also visible in Jelgava. Jelgava participants expressed their distrust towards the municipality, the mayor and the WB project partners. Many Jelgava participants feel that those parties do not have intrinsic motivation to help energy poor households. Instead they believe that the interest of these parties are primarily about financial profit. Although participants not explicitly mention their need to restore trust (except for Budapest participants), we believe it is needed to restore this trust in order to for the WB interventions to be effective. Effective interventions namely require cooperation from the target group and cooperation requires trust.

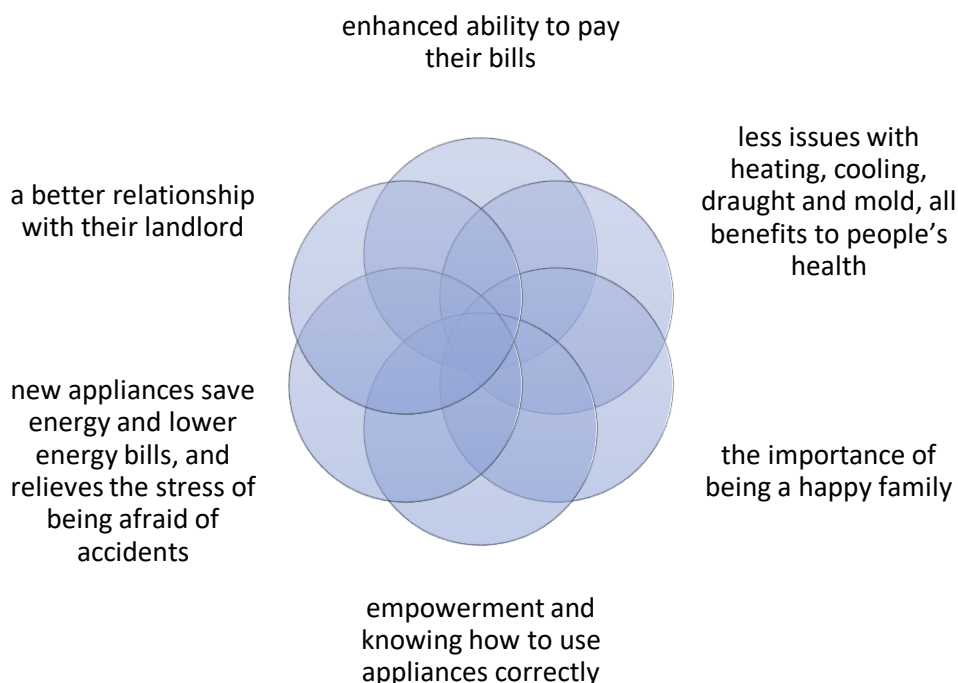


Image 8. An overview of participants needs and wishes mentioned in the Wellbased focus groups.

3.4 Participants' evaluation and suggestions for the Wellbased interventions

Most participants think the WB interventions will help them with the challenges they face. Especially housing renovations are welcomed by the participants, as well as advice on efficient energy use and efficient use of appliances. Participants feel these interventions are necessary and very helpful in order to help them save energy costs. Importantly, many participants think the beneficial effects will enhance when a pilot city offers a set of interventions instead of one single solution. In this regard a good example is Valencia.

A multi-pronged approach in Valencia

In Valencia a combination of individual advice on energy saving (including the availability of energy saving products), raising community awareness on energy poverty and providing energy usage information points (i.e., neighborhood support) are implemented.

Valencia participants propose several suggestions to improve the WB interventions that can be summarized by the idea that energy poor households should be better supported by the municipality and (energy) companies. Participants suggested to categorize the WB interventions on three levels: the individual level (i.e., the energy poor individuals), the Energy Office level and the City Council level. This allows to distinguish between different levels of responsibility and different levels in the ability to address certain actions. For example, there should be a 'good practice guide' for fair charging by energy companies. Also, participants mention that the City Council should encourage citizens to install solar panels and support households based on income. Valencia participants also believe in a local approach by setting up Energy Offices in each district and working through existing neighborhood associations.

Although this does not cover all the challenges energy poor households are dealing with (e.g., having old appliances), participants indicate that their issues are best solved with different approaches.

Deep interventions and even deeper communication needs

The notion that multiple interventions are better than one single intervention is also expressed by participants in Budapest, Skopje and Heerlen. In Heerlen, participants acknowledge that there are several factors that cause people to end up in an energy poor situation. Therefore, integrated measures of different parties are assumed to provide most value on the long run. The reason why Budapest participants argue for multiple interventions is because they prefer to have better communication with the municipality (i.e., their landlord) in addition to receiving energy advice. Budapest focus group participants particularly express their frustration about not being treated as equals and describe the communication as unclear and indirect. The municipality visits participants' homes every year and it would mean a lot to them if the municipality asks what they need or what kind of problems they face. This issue is also expressed by participants in Skopje. Skopje participants express their need to share their stories with social care departments and their need to be better supported by national and local institutions.



A more efficient home in Edirne

In contrast to the other pilot cities, Edirne provides a 'single solution' as they want to fully renovate a certain number of houses. This helps residents as extreme cold or heat experiences are lessened, which is also acknowledged by Edirne participants. One suggestion that is put forward though by several participants, is the installation of solar panels: "Solar energy is needed. We would use solar energy, not (fossil) electricity. This would reflect to the bills". Participants thus value the solution to renovate housing, but also emphasize the value of sustainable energy in order to lower their energy bills.

Doubts for getting help in Jelgava

In contrast to participants from other pilot cities, participants of Jelgava are not convinced the WB interventions will help them and other energy poor households. This relates mostly to the attitude towards beneficiaries of the WB project and the intervention: participants think the municipality will benefit from it and not the households themselves. The other critique is that a single intervention, such as an energy audit, will not lead to insulation or other structural improvements of houses. Participants think energy audits will not help energy poor households to save energy and costs and are therefore not aiding households in their daily life challenges. It is possible that Jelgava participants would be more enthusiastic about the interventions if they would not feel as much distrust towards the municipality and the WB project.

4. Conclusion

Seven focus groups with energy poor households were held in seven different European countries. The information retrieved during these focus groups contributes to answering the following questions:

- 1) Do the interventions, as developed in the Wellbased urban programme, match the needs and wishes of energy poor households?
- 2) How does the input of participants in the focus groups shape the interventions of the Wellbased urban programme?

This chapter is divided into three paragraphs. The first paragraph answers the first research question by describing how the WB interventions match the needs and wishes of energy poor households and how the interventions contribute to improvement of their living situations (paragraph 4.1). The second paragraph answers the second research question by describing how the input of energy poor households helped to shape and adjust the WB interventions (paragraph 4.2). The third paragraph describes the key take-aways and main conclusion (paragraph 4.3).

4.1 Do the interventions match the needs of energy poor households?

Overall, the WB interventions seem to match the needs of energy poor households well for three reasons.

First, participants of the focus groups indicated that their needs and wishes are primarily related to their financial abilities and their living comfort.

These findings are in line with the notion that experiencing financial stress has great impact on people's overall well-being, as well as the finding that low levels of living comfort impacts individuals' well-being and physical health (e.g., Balfour & Allen, 2014; Jessel, Sawyer, & Hernández, 2019).

Fortunately, pilot cities will include energy audits in the WB programme, give advice on energy savings and perform housing renovations (e.g., improving housing's insulation). These interventions enable individuals to save energy costs and live more comfortably, both from a physical and mental perspective: improving housing conditions namely increases housing's energy efficiency, thus decreasing energy costs and financial worrying (i.e., mental perspective) and decreases warming-, cooling-, mold- and damp issues, thus increasing living comfort (i.e., physical perspective).

Second, the two types of interventions (i.e., energy audits and renovations) correspond to participants' wish to improve their situation on the short and long term:

- Interventions such as energy saving advice and installations of small energy saving measures will positively impact households financially on the short term by helping them save energy costs.



- Renovated and energy efficient houses will directly contribute to energy cost reduction, while contributing to improvement on the long term as well: households' health and living situation will be improved (e.g., less mold, less heating issues and better humidity improves one's respiratory health among others).

Third, focus group participants indicated their wish to have multi-faceted solutions to improve their situation. This wish is answered by the fact that many WB interventions target different "layers of influence" by strengthening individuals (e.g., education and advice on energy saving), as well as strengthening communities and services (e.g., information campaigns on energy poverty and developing community support networks). The fact that energy poverty needs multi-faceted solutions is not necessarily an innovative finding, earlier research already showed that energy poverty is a multifaceted problem that touches upon multiple issues (Middlemiss, 2020). However, it is interesting to see that energy poor households themselves also recognize their issues as such.

4.2 How did the focus groups shape the Wellbased interventions?

Besides the fact that the input of the focus group participants confirmed certain aspects of the WB interventions, the focus groups also led to new insights and further developments of the interventions. All in all, the focus groups helped to:

- 1) Sharpen project partners' perspective and needs on energy poor households in more detail.
- 2) Pay more attention to certain aspects of interventions' implementation.
- 3) Add new elements to the WB intervention programme.

Sharpen perspective and needs on energy poor households

Considering the first point, the focus groups helped project partners to emphasize that interventions should be focused on unburdening or releasing households from a lot of actions before they get the actual interventions and improvements. Equally important and related to this, is that provided communication and information should be understandable for energy poor households. This requires WB project partners to place themselves in energy poor households' shoes, to make sure they provide easy-to-understand information. Although this may seem obvious, the focus groups facilitate project partners to do so.

The focus groups also showed that participants in general seem to acknowledge the fact that energy poverty is not an isolated issue and caused by several factors (e.g., a lack of knowledge on how to save energy, poor housing conditions, an uninvolved landlord). Although many WB project partners already took this into account when designing their interventions (i.e., most interventions include multi-faceted targets), this being recognized by focus group participants stressed the importance of multi-faceted solutions even more.

Being attentive to the implementation of interventions

Considering implementation aspects of the intervention programme, Leeds and Heerlen provided good examples on how the focus group helped them to be more attentive on two aspects of the interventions' implementation: recruitment and dissemination of information. In Leeds, participants of the focus group talked about people living in communities across the city that have a lot of influence on their neighbours and how important it is to get these people on board of the WB project, as it will help convince households that the intervention is



something they should be willing to take part in. In Heerlen, participants communicated that they find it rather unclear what steps they should take if they are looking for support and help. These are important aspects that will be taken into account by WB project partners for the implementation of the interventions.

Addition of new intervention elements

Although the interventions discussed with participants were very welcomed and seemed to provide households with sufficient support overall, there were elements added or changed based on the participants' input. This was the case in Budapest, Jelgava, Skopje, and Valencia. In Budapest, it was decided to add a renovation measure to the intervention programme, in order to improve the energy efficiency of houses. In Jelgava, participants were really critical on the energy audits and questioned its effectiveness, which led to reconsideration of the audit (plans for another intervention are still in development during the writing of this report). In Skopje, possibilities are explored to develop a communication channel for households to share their needs with social care departments. In addition, Skopje explores the possibility to plan subsidies for energy efficient housing. The latter is also the case in Valencia. Since participants in Valencia expressed their need for improved windows, it will be mapped what kind of existing subsidies and aid measures are available for these kinds of improvements.

All in all, the focus groups can be seen as successful. Having energy poor households thinking and actively shaping the WB interventions was one of the goals of the WB focus groups and this goal has certainly been achieved.

4.3 Main conclusion and take-aways

Within focus group research it is important to balance between views of different people. Although experiences of energy poor households might differ to some extent, participants of the focus groups overall seem to be challenged by the same issues. This idea is confirmed by the focus group moderators: although focus group participants might have sometimes influenced each other and their opinion (e.g., in Jelgava participants strengthened each other in their anger towards the mayor), this turned out not to be an issue overall. Participants were grateful to express their needs and discussions were proven fruitful because issues that were mentioned by one participant could spark something in another participant.

All in all, the focus groups created interaction in the design of the WB interventions by the actual target groups for which the interventions are intended. This strengthened the renewed plans of the project partners, as they are improved by the target group themselves. The focus groups showed that the WB project works on multiple aspects that are important for creating better living circumstances for the citizens of Europe, by improving houses, health, relationships, communication and trust. This is very important, as combatting energy poverty is a step-by-step, and long-term challenge that needs to be tackled from different sides and by different players. The WB project and these focus groups therefore contribute with taking steps in the right direction.

To summarize, there are three major take-aways that follow from the WB focus groups.

- 1) **Building trust and good communication are key:** Several focus groups illustrate that a lack of trust can be caused by the absence of good communication and because of earlier experiences that led to disappointment. Distrust leads to doubts about the



intentions and interests of the organizing party. In order for an intervention to be welcomed and to be effective, one needs to feel that this intervention follows from genuine good intentions. It is very important that energy poor households feel recognized and understood. Having adequate communication between households and governors is crucial in this regard. Communication allows trust to be restored and facilitates mutual understanding⁷. Communication is also key in the sense that communication styles and channels should be matched to the communication styles and channels of the target group for which the intervention is designed.

- 2) **Listening to your target group in designing interventions is key:** listening to your target group with an unbiased ear allows one to become attentive of one's own blind spots and to shift one's perspective to the target group you are designing an intervention for. The current study showed that interventions become more in line with the target group's needs if you enable them to provide input.
- 3) **The focus groups show that Wellbased interventions have the potential of improving peoples' lives:** Most of the participants understand the reasoning behind the actions that Wellbased partners are planning to take, and believe they will help improve their lives to a certain extent. Benefits differ according to them from stress alleviation, increased living comfort and sometimes health improvements. This implies the designed interventions were in line with the target groups' needs, and that interventions can be improved by listening with an open mind to the people in need.

⁷ Skopje illustrates a good example to do this: 100 households will be surveyed to collect ideas on policy proposals to combat energy poverty in their city.



5 List of references

- Apergis, N., Polemis, M., & Soursou, S. E. (2021). Energy poverty and education: Fresh evidence from a panel of developing countries. *Energy Economics*, 106, 105430. <https://doi.org/10.1016/j.eneco.2021.105430>
- Balfour, R., & Allen, J. (2014). Local action on health inequalities: Fuel poverty and cold home-related health problems. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/355790/Briefing7_Fuel_poverty_health_inequalities.pdf
- Dahlgren, G., & Whitehead, M. (1991). Policies and strategies to promote social equity in health. Retrieved from: <https://core.ac.uk/download/pdf/6472456.pdf>
- Fischer, M., Safaeinili, N., Haverfield, M. C., Brown-Johnson, C. G., Zions, D., & Zulman, D. M. (2021). Approach to human-centered, evidence-driven adaptive design (AHEAD) for health care interventions: A proposed framework. *Journal of General Internal Medicine*, 36, 1041-1048. <https://doi.org/10.1007/s11606-020-06451-4>
- Grey, C. N. B., Schmieder-Gaite, T., Jiang, S., Nascimento, C., & Poortinga, W. (2017). Cold homes, fuel poverty and energy efficiency improvements: A longitudinal focus group approach. *Indoor and Built Environment*, 26, 902-913. <https://doi.org/10.1177%2F1420326X17703450>
- Jessel, S., Sawyer, S., & Hernández, D., (2019). Energy, poverty, and health in climate change: A comprehensive review of an emerging literature. *Frontiers in Public Health*, 7, 357. <https://doi.org/10.3389/fpubh.2019.00357>
- Liddell, C., & Morris, C. (2010). Fuel poverty and human health: A review of recent evidence. *Energy policy*, 38, 2987-2997. <http://dx.doi.org/10.1016/j.enpol.2010.01.037>
- Middlemiss, L. (2020). Energy poverty: Understanding and addressing systemic inequalities. In R. Galvin (Eds.), *Inequality and Energy: How Extremes of Wealth and Poverty in High Income Countries Affect CO2 Emissions and Access to Energy* (99-114). Cambridge: Academic Press.
- Middlemiss, L. & Gillard, R. (2015). Fuel poverty from the bottom-up: Characterising household energy vulnerability through the lived experience of the fuel poor. *Energy Research & Social Science*, 6, 146-154. <http://dx.doi.org/10.1016/j.erss.2015.02.001>



- Platt, S. D., Martin, C. J., Hunt, S. M., & Lewis, C. W. (1989). Damp housing, mould growth, and symptomatic health state. *British Medical Journal*, 298, 1673.
<https://doi.org/10.1136/bmj.298.6689.1673>
- Sareen, S., Thomson, H., Herrero, S. T., Gouveia, J. P., Lippert, I., & Lis, A. (2020). European energy poverty metrics: Scales, prospects and limits. *Global Transition*, 2, 26-36.
<https://doi.org/10.1016/j.glt.2020.01.003>
- Straver, K., & Mulder, P. (2020). Energiearmoede en de energietransitie: Energiearmoede beter meten, monitoren en bestrijden. Retrieved from: <https://www.tno.nl/nl/over-tno/nieuws/2020/11/energiearmoede-en-de-energietransitie/>
- Tod, A., Lusambili, A., Cooke, J., Homer, C., Abbott, J., Stocks, A., & McDaid, K. (2013). Barriers to keeping warm in later life. *Nursing Older People*, 25, 22-29.
<https://doi.org/10.7748/nop2013.12.25.10.22.e434>
- Wilkinson, S. (1998). Focus group methodology: a review. *International Journal of Social Research Methodology*, 1, 181-203. <https://doi.org/10.1080/13645579.1998.10846874>



6 Annexes

List of annexes

- Annex 1: General findings of explorative meetings
- Annex 2: Intervention overview Wellbased pilots
- Annex 3: Personas
- Annex 4: Results format



Annex 1 General findings explorative meetings

This summary contains points that were discussed during the focus group preparation meetings with all six pilot cities. Points that were addressed by all pilot cities are described under paragraph 1 'Pilot broad findings'. This paragraph is further divided into *general observations*, *what pilot cities need from TNO*, *topics to be discussed during the focus groups* and *how to report on the focus group findings*. The second paragraph: 'Pilot specific findings', describes points that were addressed by specific pilot cities. A planning of when pilot cities aim to do the focus group is included on page 3.

General observations

- General goals for the focus group and report of the focus group:
 - o Validate general WELLBASED framework of T2.3
 - o Adjust plans for interventions to feasible suggestions and ideas of participants
 - o Gain insight in wishes of stakeholders and households
 - o Gain insight in aspects of the project about which stakeholders and households are enthusiastic
 - o Collect (different) perspectives on energy poverty; i.e., which problems do households face and do they realize are related to energy use? What do households perceive as worst? And in what order should their problems be addressed?)
 - o Gain insight in common problems and challenges of households between pilot cities and territory issues

- Partners realized the value of organizing focus groups, and even have the idea of planning several focus groups instead of one. The engagement with the target group and potential stakeholders and partners of the WELLBASED project is therefore set in motion by the preparation meetings of T2.4. Many pilot cities plan to organize two focus groups: one for the households, one for stakeholders (TNO task T2.4 focusses on focus group with households).

- Several pilots do not have a clear idea of the interventions to be selected, and see different practical challenges for the execution of the implementation (data & privacy issues, finding a control group). Some partners have a lot of experience with focus groups for energy poverty households, other partners request more guidance on this. TNO will try to use the expertise of experienced partners to set up the focus group guidelines and easy, practical ways of reporting.



- The focus group should answer questions such as: “Who is it for, what should we do, how shall we do it, and what are the costs?” In particular the first two questions are important for the focus groups.

What pilot cities need from TNO

- The pilots would like to have insight in similar and different issues between the participating cities. Therefore, TNO should collect ideas and interventions from pilots in order for the focus groups to contain similar elements. This is necessary to make comparisons between pilots as well. It can create an understanding of where each city stands.
- As pilot partners differ in their experience with focus groups, TNO will prepare two guideline formats:
 - o One format will contain extra background information that might be less relevant for experienced partners. This extensive guidelines will include the following:
 - Some general information on focus group-methodology (e.g., examples of how to chair and execute a focus group, number of participants)
 - Information on energy poverty and its interaction with other factors (i.e., visualization of how energy poverty interacts with health factors)
 - Information on points of discussion; what are the right questions to ask? What will be the general questions all pilots should ask their focus group?
 - An overview of possible target groups dealing with energy poverty
 - Templates for reporting results of the focus group
 - Informed consent forms for participants participating in the focus group
 - o The less extensive version will include the following:
 - Information on points of discussion; what are the right questions to ask? What will be the general questions all pilots should ask their focus group?
 - Templates for reporting results of the focus group
 - Informed consent forms for participants participating in the focus group

Pilot partners can choose themselves which format they would like to receive

Topics to be discussed during focus groups



- Ideas for topics to be discussed during focus groups:
 - Explore the definition of energy poverty; what does energy poverty mean to the participants? What do well-living conditions entail for them?
 - Gain insight in the challenges that households face, as well as possible solutions for their energy poverty issues (i.e., what support do households need?)
 - Combine perspectives of energy poor households that have been aided by energy advice and households that have not yet received such advice
 - Reflect on the chosen interventions of the pilots and its relationship to the needs of the households

Reporting on focus group findings

- The final report should preferably give insight into differences and similarities between pilots, as well as the organizations that are involved in dealing with energy poverty issues
- The final report should be easy to read (i.e., no extensive texts) include visualizations and images (e.g., pictures of households that participated and are willing to have their photo taken)
- The final report should give insight in how results of the focus group contributed to changes in the WELLBASED program of T2.3
- The final report should give insight in the main challenges and needs of energy poor people



Annex 2 Intervention overview Wellbased pilots

Latvia

Interventions

- Currently, multiple isolation projects have been conducted for several years in which homes were insulated and households got advice on energy efficiency measures. The results from these projects were monitored, calculated and showed a decrease in energy use for the energy poor households. The use of the term energy poverty and accompanied definitions is new to the municipality of Jelgava and its policymakers. They hope and expect to learn more about its use and the benefits of using it from Wellbased partners.
- The pilot project for Wellbased will contain 141 households, that are labelled as family group apartments. These apartments exist for affected families/households. The involved stakeholders are the municipal social department, the regional energy agency and the municipal operative operation center of Jelgava.
- The interventions are threefold and conclude the following:
 - Advice and talks with households to make people aware of a long-term perspective and make them aware of the necessity of sustainability measures in their homes. (i.e., investments are necessary to prepare for future energy)
 - Advice and talks are aimed at changing the way people think about energy consumption and make them more aware of their energy use (e.g., energy saving advice).
 - Focus groups will be organized for experts and households separately. The current idea is to first have a focus group between 15th of October and 1st of November. Secondly, a hackathon (with a variety of stakeholders, e.g. entrepreneurs) might be organized focusing on creative innovative solutions for energy poverty problems, and possibly followed by a meeting that entails focus group and hackathon elements.
- Challenges expected to arise in the implementation of the interventions concern GDPR and ethical issues because of health monitoring devices (e.g., smartwatches: what if someone of the operation center sees someone has a heart attack at home, but everything is anonymous? Or what if this is not anonymous, but privacy contracts forbid to act on health information for municipal workers?). Another challenge will be the use of devices; what if someone breaks the device, or perhaps even sells it? How and when do we have contracts for households for these types of issues?

Leeds

Interventions

- Most likely there will be a selection of High rise apartments, that can be compared on pre- and post-measure interventions. As some high rise apartment buildings are already renovated and some are not, this allows to compare households living standards and accompanied perceived benefits.



- Whatever cases will be selected, it must realize clear input for a national and local energy efficiency building strategy and related policy advice.
- There is an ongoing discussion about which high rises will be included (e.g., 'The Shakespeares': two flats with ethnic diverse families. Leeds pilot site can try and compare other flats with singles/less ethnic minorities).
- Ongoing project in Leeds are the Green Doctors, who provide energy saving advice for households, and also look at insulation and behavioral aspects. Another stakeholder is the 'Breath Easy group', which are tenants with asthma problems.

Edirne

Interventions

- The interventions target people in economically deprived households. These are very poor people facing social and health problems, as well as domestic violence. The majority of these people are Roma.
- The municipality of Erdirne has already undertaken considerable work to better the conditions in these types of neighborhoods. ROMACTED is an example of a project which focuses on the inclusiveness of Roma people. This project gave considerable insight in the (energy) problems and Wellbased program builds on (the insights of) this project as well.
- There are several interventions planned, including:
 - o Physical renovation of homes (e.g., building retrofits, thermal insulation, preventing heat leaks)
 - o Demand side management: providing feedback on energy use (with the aim of behavioural change)
 - o Behavioural change techniques
 - o Information and awareness raising towards energy consciousness
- Measures include: community- and individual health and wellbeing indicators (e.g., age, gender), energy KPI's (e.g., energy performance, costs, comfort, air quality). Baselines are measured and indicators will be monitored
- Involved actors include: local municipality, social help and solidarity groups (e.g., Zero Discrimination), neighborhood associations and neighborhood administrative heads

Budapest

Interventions

- In September Budapest will start with distributing surveys which will be used to recruit participants for the Wellbased program. The target group includes low-income families, victims of domestic violence and/or drug abuse, households with disabled and/or chronically ill members, unemployed members and single mothers.
- The Interventions focus on two aspects: energy advice (e.g., energy audits) & social advice (e.g., information on debts). The interventions are set-up in collaboration with a Horizon project Come Act(?)
- Measures include smart meters (including devices measuring air pressure, temperature and humidity) and health meter devices (measuring pulse oxymetry, blood pressure and sleep quality)



- Expressed concerns about difficulty to find control groups
- Involved actors include: municipality, urban development plc., family counseling and child protection center
- Preferably two focus groups are held (one for stakeholders and one for households). Focus groups will be set-up together with the facility manager of the target buildings

Valencia

Interventions

- Interventions entail several services provided by the Energy Office
 - a. Energy audits: help with energy bills and energy efficiency interventions ('individual support')
 - b. Health audits: measuring mental well-being with the help of questionnaires
 - c. Empowering activities: group activities/workshops/peer to peer training to increase mental well-being and decrease feeling of shame
- Campaigns to increase awareness on energy poverty issues
- Within the Wellbased project the scope of these services will be increased
- Participants are recruited via Energy Office
- Participants are part of low income household who are referred to the Energy Office via social services
- Electronical devices are used to monitor health parameters (they are not part of the intervention itself, as is the case in some pilots)
- There are several interventions planned, all starting at the Energy Office. Low-income households are referred to this office by the social department. The Energy Office pays energy bills of these households and makes them aware of the energy interventions. The energy interventions are twofold: 1) energy audits, where people get energy saving advice and 2) advice on energy contracts (e.g., changing energy supplier or getting other tariffs). There is also an intervention on mental health, which aims to empower people by taking away shame, guilt or loneliness that energy poor people might experience. By organizing peer-2-peer meetings for energy poor households, they want to create an awareness that people from the same community share these feelings and experiences. In addition, these peer-2-peer meetings enable households to help households: the ones that are already got help will train and help the energy poor households with their problems. A final type of intervention is a general awareness campaign for the municipality of Valencia. This campaign aims to create awareness on energy poverty. By creating this awareness in the community, it is aimed decrease stigmatization of the energy poor. Also, different networks within the Valencian community get aware of the problem that they might know from their expertise like health or youth centers.
- Data is collected on: health, wellbeing, energy efficiency, sociodemographic information and lived experience (qualitative data). In contrast to some of the other pilots electronical devices are not part of the intervention, but used to monitor health parameters only.

Heerlen



Interventions

- Currently, three types of interventions are being considered:
 - Small energy efficiency measures
 - Information (e.g., ventilation advice, financial effects of energy efficiency)
 - Subsidies and information
- Possible target groups include: homeowners, social tenants and private tenants.
Presumably social tenants are targeted for the planned interventions
- It will be further checked which renovation projects are planned and whether there is a possibility to joint collaborate with this project within the Wellbased program and timeframe

Annex 3 Personas

The Netherlands (TNO)

BOUCHRA



Bouchra is a single woman in her early forties. Despite the fact that she has been living in her small three room apartment for a couple of years, there is hardly any furniture. The only personal touch to the apartment are some posters with Arabic texts. The dwelling itself is in poor condition, being single glazed, poorly insulated and with many cracks in the walls. Her landlord has promised many times to improve her situation, but so far nothing has been done. The energy coach that visited her house tried to give her advice, but there was a lack of understanding because of a lack of Dutch language skills. These events left her feeling frustration towards the authorities.

She lives in a neighbourhood with a high percentage of elderly people where she feels socially isolated. She has no emotional connection to the apartment, and if it was up to her she would leave the place. Because of the language barrier, she does not sufficiently understand her energy bill. She does invite a lot of family and friends over to cook traditional meals. Preparing these meals takes several days, with multiple pans on a low fire. She is aware that this increases her energy bill and thus her debt with the energy company. But since this is one of the few things that gives her pleasure, she does not want to stop doing this.

MICHIEL, TARA, FRENKIE AND LEYA



This family lives in a large rental house, built around 2000. One of the parents (Michiel) is unemployed, but Tara still has a job that pays the bills. Their income is therefore just above the limit for subsidies on their rent. One of their children just turned 18, so several subsidies that they received for Douwe stopped (kinderbijslag en kindgebonden budget). Their son is starting a new course, and he needs books and a laptop, things that the household is trying to save money for. There is a chance they have to stop their subscription to their local football club, as the contributions they have to pay might be too high.

Tensions are rising at home, the parents worry a lot about getting by. If things don't improve, and Michiel doesn't find a new job, they probably won't go on holiday this year, again. They will tell relatives and friends they'll just stay home this year 'relaxing', because they don't want to tell the truth; they can't afford it. Their energy bill is around 130 euros a month, but it seems hard to change that.

JAN



Jan is a single retired man who lives alone in a new apartment building. He receives welfare, and has difficulty getting by on this. He has trouble walking because of one leg. He writes down his energy use every week. He has a 'spartan life': "I shower once a week, that is all I can afford". He just bought a small plastic bowl to do the dishes, because that is smaller than filling the sink with hot water. The advice he had from an energy advisor didn't help him; as he knew everything that they told him.

The only thing he refuses to save energy on, is the TV and radio. It is his connection to the outside world, and therefore he has the TV on all day (includes radio stations). It is a pretty old appliance, but he doesn't have the money to buy a new one. He says he still pays 100 euro a month on energy. This is probably due to this appliance being switched on the whole day. He complains a lot about his welfare check, about politics, and the additional money (discount at certain stores on several things like clothes, etc.) he receives from the municipality.

SUZANNE



Suzanne lives in Amersfoort with her two children Eva (6) and Mark (4). She was divorced last year and recently found herself in debt. She was left responsible for the mortgage, the costs of taking care of the children, groceries, and so on. Suzanne worked part time; her husband used to make a salary that covered most expenses. With her small salary she was not able to pay all monthly bills, and within five months her first reminders for payment turned into debts.

There might be services, websites or municipality subsidies or advice available to her, but she does not know where to find them or how to make use of them. The stress of taking care of the children and working as much as she can to make ends meet, makes it difficult to find the time to fill in these forms. She has debts with her energy provider, among others. She does not know how to pay these debts, or how to save energy. She pays around 150 EU per month on energy. To her, it is a fact of life and one of the many problems she's meaning to fix when things are less hectic.

JAAP



When Jaap (50, single) tells us he is proud to have electricity again in the past two weeks, he also tells us that he is keen to learn more about how to save energy. His electricity was cut off by his energy supplier, he has several debts and at the moment has a 'budget coach'. His social housing apartment, contains four couches in the living room stacked on top of each other, 3 of them used to belong to his ill mother; it's a shame to throw them away he says. His apartment is full of random, disorganized things and smells of alcohol. On the table are several bills, medical descriptions and pills as he has a physical impairment in his legs. He can't walk a lot, and his legs get cold very quickly he mentions.

The small apartment is heated with gas, and the windows are not double glazed. He tries to save energy by not washing and showering too much, and only heats his living room. His son pays the energy bill at the moment, so he is keen on not using too much energy. He doesn't know how much energy he uses at the moment, but he is motivated to keep bills as low as possible.

HENK AND JEANNE



Henk and Jeanne are a couple in their eighties. They live in Rotterdam, in relatively small older people's apartment built in the nineties. Their rented house is decorated with old fashioned furniture, and their electrical appliances are also old. They have good contact with their children, but because the children live far away, this is mostly on the phone. They are aware of the fact that sustainable measures can make their household more energy efficient but they lack the network to reach the right services. Since their children live far away and since they do want to disturb their busy lives, they are hesitant to ask for their help.

They both worked their whole lives in the catering industry which has left its marks on their physical condition. For the last few years, Jeanne has endured joint aches. Together with a couple of hours a week of assistance from social care, Henk takes care of her at home. Since this takes up most of his time, reducing their energy use or installing energy saving measures are a low priority. Together they live from their old age pension, which is just about enough to sustain them. But they have a relatively high energy bill, since Jeanne's condition requires a stable temperature in the house all year around. They know how to live economically, but their high energy bills have resulted in them being in debt with their energy provider. With Jeanne's condition and their lack of access to direct energy saving services, these debts have become less of a priority.



Leeds

Persona 1

Jean is 78 years old and lives on her own in a flat in Little London, just on the edge of Leeds City Centre. Jean has been living on her own since her husband passed away five years ago and has a grown up son and daughter who live elsewhere in the UK. She has to pay all the bills and is still on the same energy tariff that her husband set up before he passed away.

Jean's flat can sometimes be very cold which makes it hard to manage her arthritis, which can flare up in cold temperatures. There is some mould beginning to form in the bathroom. As Jean is a council tenant she has alerted them about the issue, and they have scheduled a visit to come and assess the issue.

Her energy bills are very high but she does not know how to change tariffs to find a better deal. Her son says he will help her find a better deal online but he does not visit as much as Jean would like and therefore this has not happened yet.

Persona 2

Brian is 53 and lives in small house in Middleton with his wife Sally who is 50. While money is tight their energy bills are normally just about affordable, but the recent increase in prices has meant that they are now struggling to pay their bills.

To compensate Brian and Sally have taken to just having the heating on in the living room, which means that the rest of the house is getting very cold. This is affecting their mental health as they are anxious about how they will manage when the weather gets colder.

Persona 3

Jack is 23 years old and lives in a one bedroom flat with his girlfriend, Sam who is 22. They both have call centre jobs earning just above the minimum wage. They can generally cover their energy bills but have noticed them increase since they have been instructed by their employers to work from home due to the Pandemic.

They have since been told that their homeworking arrangements will become permanent and are concerned with the recent gas price increases that has been in the news. So far, they haven't been offered any additional money by their employers to cover increased energy costs.

Persona 4

Florian is 28 and lives in a flat above the shops in Lincoln Green. He has been living in this flat for two years since he arrived from Romania. He has a job as a delivery driver, but this is a zero-hours contract.

The flat that Florian lives in can be very cold at times and there are big draughts from both the door and the single glazed windows. This can mean that at certain times of the year the flat is very expensive to heat.



Florian has spoken to his landlord about the draughts and they have agreed to do something about it, but nothing has happened yet. He is concerned that as the weather gets colder the draughts could lead to him having health issues as he has asthma, and he cannot afford to not be able work as he does not get sick pay.

Turkey

SEMA

Sema is 55 years old. Her husband passed away 5 years ago. She lost one of her two son's 10 years ago. The other son is in prison. Sema lives with her 23 years old granddaughter, her grandson-in-law, her daughter-in-law and 3 grandchildren, who are between 6 and 15 years. In her youth, Sema worked very hard, to make ends meet. She wore her body off in tasks such as lifting heavy furniture. Apart from hernia, she has chronic conditions such as rheumatism. Her home is very damp (humid). This makes her rheumatism worse.

Sema receives widowhood allowance from the state. The allowance she receives meets household's bottled gas costs for cooking, but not her medication costs. Earnings from scrap collecting – Sema's granddaughter's and grandson-in-law's only source of income – is only sufficient for their main staples, namely pasta, bulgur and grains. Most of the time they cannot pay their electricity bill. That is why their electricity is often cut.

GÜNGÖR COUPLE

Newlywed Güngör couple has a two-year-old toddler. While Neriman is 19 years old, Zeki is 18 years old. The couple lives in a room constructed adjacent to Zeki's parent's house. While the room is newly constructed, its floor is usually wet because of high groundwater. As the room's walls are not plastered and window upstands are from wood, cold passes through. They try to heat the room with the coal they receive as social assistance. However, as the coal is of low quality and there is no insulation, the room does not heat up. Time to time the stove smokes. They cannot buy bottled water for their child. Their child, Ahmet, often suffers from as bronchitis and infectious diseases.

The couple tries to pay the debts, which mounted from their wedding. While they still struggle to pay the instalments of their washing machine, television and bed purchase, the energy costs wreak havoc on the couple.

ALİ

Ali is 35 years old and lives with his wife and three children in a makeshift two-bedroom house. Ali, who provided for his family with daily jobs before his prison sentence, faces difficulty in finding a secure job because he is an ex-convict. Also, due to the pandemic, he cannot even find a daily job. Part of the roof of the house he lives collapsed. When it rains, Ali's families' belongings get wet. Since there is no glass in the windows, Ali covered the windows with linoleum to block the cold. The house is damp. The toilet and bathroom are outside. The family shares the toilet and bathroom with other families in the same courtyard. Ali collects bushes from the woods just off the neighbourhood to stay warm. From time to time, he burns old clothes he finds in the garbage. When plastic mixes with what they burn, a strong odour surrounds the place.

Ali wants his children to receive good education. However, as he does not have much income and he is dependent on social assistance, he cannot create sufficient conditions for his children's schooling. Children's school absenteeism is high.



Budapest

ERZSÉBET

Erzsébet is retired, widowed for 10 years and has been living alone in her municipal apartment ever since. She used to work in a factory, doing physical work that wore her joints. Her health is worsening, her blood pressure is high and she also has asthma. Her apartment is not properly insulated, therefore she catches a cold several times each season. She has an adult daughter, Anikó, who lives in the neighbouring block, in an apartment, with her 4-year-old daughter. Erzsébet has accumulated a lot of arrears due to her small pension, which her daughter is trying to help make up for, but she is also struggling as a single parent. Erzsébet tries to help Anikó by taking care of her granddaughter on a regular basis, while Anikó supports her mother with money, doing the groceries and buying medication. She spends HUF 20,000 a month on her energy bills, which she always tries to pay on time, and because of that she is often unable to buy her medication.

ILONA

Ilona lives with her husband, László, in the apartment of her mother-in-law, who died a few years ago. Both are skilled workers; László works in the construction industry, but after his accident at work his working ability changed 10 years ago, so he can fulfil less and less tasks. For the past 20 years, Ilona has cared for her mother-in-law with serious health issues who required constant supervision and full care. She has not been able to find a job since his mother-in-law's death, partly because of her little experience and partly because of her age. They are often late in paying their bills, while in winter they often fail to heat the apartment adequately.

JÁNOS

János lives with his partner, Krisztina, and the woman's two under-age children in a social rental apartment. One of the children is seriously ill and therefore needs constant supervision, which is why Krisztina earns her income from occasional work at home, while János works for a minimum wage in a nearby factory. The child's treatment and medications put a significant financial pressure on the family, so they try to keep all their other consumption to a minimum, which, however, puts a strain on the family both mentally and physically. The apartment cannot be adequately heated in the winter, but during the summer it gets very hot, which they are unable to cool down. Their household appliances are old and outdated, so they are not efficient enough, but at the same time, their consumption is higher than that of modern appliances.



Annex 4 Results format

Exploration part results format

Topic	Examples/anecdotes by respondents	Other comments/consensus among participants?
Do participants familiarize with the personal stories?		
Financial stress/debts (related to energy use)		
Health issues		
Home heating issues (too hot/too cold)		
Old appliances		



Topic	Examples/anecdotes by respondents	Other comments/consensus among participants?
Social isolation		
Emotional suffering		
Limited use of energy resources (water/electricity)		
Poor relationship/contact with landlord		
Work stress		
What issues do participants mention that are not described in the		



Topic	Examples/anecdotes by respondents	Other comments/consensus among participants?
stories or current themes?		
What issues do participants bother most?		
Issues mentioned by participants not covered in this format		

Engagement part results format

Positive improvements

Topic	Examples/anecdotes by respondents	Other comments/consensus among participants?
Do the improvements cover what participants want to improve?		
Having enough money		
New appliances		



Access to energy resources (warm water, electricity)		
Good relationship with landlord		
Renovated home		
Working/job		
Social contacts		



Happy family/happy child/no emotional suffering		
Are there improvement participants prefer that are not covered in the current themes?		

WELLBASED interventions

Topic	Examples/anecdotes by respondents	Other comments/consensus among participants?
Which issues are solved by the WB interventions according to participants?		
What are suggestions to improve the WB interventions?		
Issues mentioned by participants not covered in this format		



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