



## **D2.3: Seven (7) adapted Urban Programmes**

### **WP2 – Definition of the urban programme framework and adaptation**

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## Statement of originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation, or both.

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## List of acronyms

- AL - Algiros district (Valencia, Spain)
- D2.2 – Deliverable 2.2
- D2.3 – Deliverable 2.3
- CG - Camins al Grau district (Valencia, Spain)
- EC – European Commission
- EDM - Edirne Municipality
- EE – Energy Efficiency
- EP – Energy Poverty
- EPAH – Energy Poverty Advisory Hub
- EU – European Union
- H2020 – Horizon 2020
- HEERLEN - Municipality of Heerlen
- JPOIC - Jelgava Municipality Operative Information Centre
- LCC – Leeds City Council
- LNV – Las Naves
- MUTK - Magyar Urbanisztikai Tudaskozpont Nonprofit Kft
- OBM - Óbuda-Békásmegyer Municipality
- PM - Poblets Maritims district (Valencia, Spain)
- SKO - City of Skopje
- TBD – To Be Defined
- UNIVLEEDS – University of Leeds
- VCE – Valencia Clima i Energia
- VLC – Valencia
- WB – WellBased Project
- WP – Work Package
- WUP – WellBased Urban Programme
- ZDA - Zero Discrimination Association

## Executive summary

The Deliverable 2.3 (D2.3) describes the WellBased Urban Programmes (WUP) of the seven project pilot cities: Edirne (Turkey), Heerlen (Netherlands), Jelgava, (Latvia), Leeds (United Kingdom), Óbuda - Békásmegyer district (Budapest, Hungary), Skopje (Macedonia)<sup>1</sup> and Valencia (Spain).

The descriptions include their thematic scope, a characterisation of their target population, objectives, indicators and main actions to be implemented, including preliminary timelines. The deliverable also presents an overview of each one of the WUPs and a brief comparative analysis as conclusion.

This deliverable is based on the general framework carried out in the previous deliverable, **D2.2: General framework of the Urban Programme**, which set up a common structure for all pilots to provide the required information about their urban programmes. D2.2 has been filled out by the seven pilot cities resulting in the present document.

The seven cities' programmes described in this document represent different urban realities: diverse population characteristics, housing stock, social economic context, health facilities, political backgrounds regarding the fight against EP, climate conditions, etc. Each programme has been adapted to the local situation and some of their differences and common patterns have been analysed and compared in the document.

Regarding population characteristics, four of the seven pilots are likely to address an aged population and there seems to be a significant prevalence of Roma population in the areas of intervention.

Regarding actions, all pilots will give individual information and advice to participants about domestic energy efficiency, including in some cases support in managing debts in utility bills. While some pilots will deliver energy efficiency kits and replace old house appliances, in other cases Wellbased programme will give support to structural house improvements such as thermal insulation or window replacement (Edirne, Heerlen, Leeds). Óbuda - Békásmegyer also plans to induce behavioural change through smart meter devices installed at home.

Obuda- Békásmegyer and Valencia will make strong focus on group trainings, community building and citizen empowerment, addressing mental health in some cases. Equally, many pilots will realise trainings to a range of professionals (health staff, social workers, etc.) on how to identify people in Energy Poverty.

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<sup>1</sup> Please note that the city of Skopje will not implement the pilot during the lifetime of the project. However, it will participate in the preparatory activities following the same procedures than the rest of pilots, obtaining a feasibility study to pave the way and facilitate the future deployment of the programme in the city.

Regarding broader levels of intervention, most of the pilots plan to do a powerful communication awareness campaign on EP and direct their actions towards policy change.

The urban programmes described in this deliverable will allow to elaborate scientific evidence about the impact of EP measures on health and wellbeing on citizens. Based on this, policy recommendations will be elaborated in the next phase to drive an efficient mitigation of EP.

## **Deliverable Keywords**

Energy Poverty; Urban Planning; Social Determinants of Health; Social Ecological Model



# Chapter 1: Introduction

## 1.1. Objectives

Within Wellbased project seven urban programmes will be carried out with the aim of significantly reducing Energy Poverty and its effects on health and wellbeing in different cities: Edirne (Turkey), Heerlen (Netherlands), Jelgava, (Latvia), Leeds (United Kingdom), Óbuda - Békásmegyer district (Budapest, Hungary), Skopje (Macedonia)<sup>2</sup> and Valencia (Spain).

Present deliverable, **D2.3: Seven (7) adapted urban programme**, contains the seven Wellbased Urban Programmes (or WUP) to face Energy Poverty, each WUP including: the overall intervention approach, the target population characterisation, the definition of objectives and actions, and information about the indicators used to evaluate impact on citizens' health and wellbeing (Details on the content can be found below in section 1.6).

The general aim of this document is to make each pilot advance further in the design of its programme, gaining an in-depth knowledge of its target population and defining its main actions focus. Equally, it will allow sharing information between all consortium partners, which can lead to valuable feedback to each programme's approach and mutual learning between pilots to guide the following implementation plan in the next phase.

## 1.2. Relation with other deliverables

- This deliverable is based on the general framework carried out in the previous deliverable, **D2.2: General framework of the Urban Programme**.
- The next deliverable, **D3.1: Implementation plan for each pilot site**, will be a development of D2.3 that will describe the detailed individual implementation plans in each pilot site to deploy the WUP, including the recruitment strategy, monitoring strategy, data collection planning, detailed timelines, gender issues, etc.
- Finally, the deliverables **D2.1: Report on public policies and interventions to reduce EP** and **D2.4: Report from the focus group created** are also related to D2.3. The former presents EP interventions examples and case studies, classified under the social ecological model. The latter contains the main results obtained in the focus group held with stakeholders and potential participants. Both documents have inspired the actions and interventions adapted for each WUP presented in this deliverable.

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<sup>2</sup> Please note that the city of Skopje will not implement the pilot during the lifetime of the project. However, it will participate in the preparatory activities following the same procedures than the rest of pilots, obtaining a feasibility study to pave the way and facilitate the future deployment of the programme in the city.

### 1.3. The social ecological model: a theoretical approach to define the WUP's<sup>3</sup>

The intervention model within the WELLBASED project follows the structure proposed by Whitehead, co-author of the social ecological model, intervening on four layers as shown in Figure 1. The social ecological model proposed by Dahlgren and Whitehead<sup>4</sup> maps the relationship between the individuals, their environment and their health. The health and well-being of individuals and populations across all age groups is influenced by a range of factors both within and outside the individual's control. The model has been developed to describe the social and ecological determinants of health – the way in which elements of the social, economic and physical environments interact with individuals' biological factors and behaviours and shape health status. The model defines different layers of influence, such as constitutional factors, individual lifestyle factors, community influences, living and working conditions and more general social conditions.

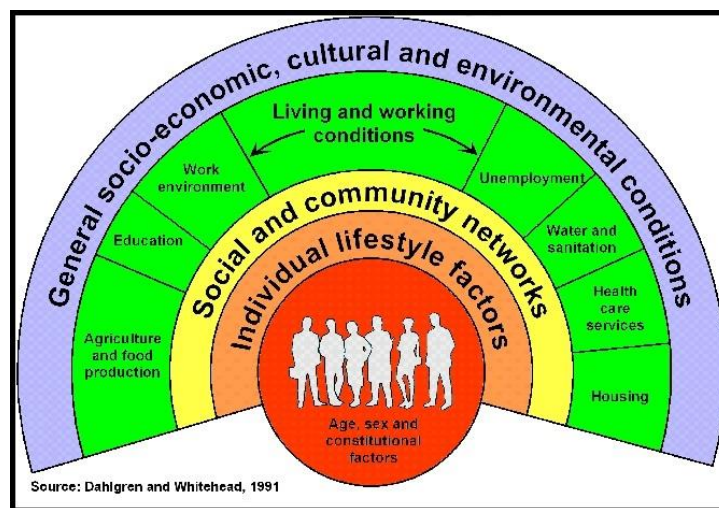


Figure 1. The four layers of Social Ecological model (Dahlgren and Whitehead, 1991)

As established in D2.2, the definition of WUP's follows the theoretical basis of the socioecological model. More specifically, the Dahlgren and Whitehead model shapes the description of:

- The preliminary analysis focused on the identification of health determinants and the social characterisation of the area of intervention
- The specific objectives and actions
- Indicators to evaluate the impact on citizens' health and wellbeing, when considered appropriate by the pilot city

<sup>3</sup> This section has been reproduced from D2.2 (1.2) since we consider relevant to state in this deliverable the theoretical model on which we have based the WUPs' descriptions.

<sup>4</sup> Dahlgren, G., & Whitehead, M. (2007). European strategies for tackling social inequities in health: Levelling up Part 2 (p. 149). WHO Collaborating Centre for Policy Research on Social Determinants of Health. [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0018/103824/E89384.pdf](http://www.euro.who.int/__data/assets/pdf_file/0018/103824/E89384.pdf)

## 1.4. Methodology

The methodology to elaborate the present document was defined in **Deliverable 2.2**, setting up a common structure for all pilots as a guide for them to provide the required information about their urban programmes. D2.2 has been filled out by the seven pilot cities and compiled by the team in charge of the deliverable (LNV), resulting in the present document. Introduction and Conclusions chapters, as well as the WUP overviews and figures common to all pilots have been introduced by LNV, once the seven programmes received and analysed.

This kind of methodology has been used in many European projects where programmes or implementation plans had to be described<sup>5</sup>. D2.2 framework has been especially inspired by the “Urbact Toolbox”, set of resources made available by the EU project Urbact and its Implementation Plan template<sup>6</sup>.

### Mural collaborative tool

On top of the Deliverable, an on-line collaborative tool has been elaborated by LNV and made available to each one of the pilots to help them design their programmes collaboratively and facilitate sharing main information between them. Mural's template is shown in Figure 2.

The Murals can be found in the following links: [Valencia](#), [Herleen](#), [Edirne](#), [Leeds](#), [Obuda-Békásmegye](#), [Jelgava](#) and [Skopje](#).

### Data collection for Target Population section

Regarding the Target Population characterisation, information has been gathered for each one of the five layers mentioned before (constitutional or socio demographical factors, individual lifestyles, social networks, living and working conditions and general environmental conditions) from statistics offices, official citizen surveys and other official data sources with the aim of reflecting and understanding better the factors that could determine health and wellbeing in relation to the Energy Poverty situation.

Each pilot city has collected its own local information under a semi-guided scheme, choosing from a list of suggested items (delivered in D2.2) based on their data availability and their relevance to their WUP.

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<sup>5</sup> For example, EU projects: [MatchUp](#), [ValueCare](#), [Activage](#), etc.

<sup>6</sup> Tool box of EU Project Urbact: <https://urbact.eu/toolbox-home> and [Implementation Plan template](#)

**Pilot Name**  
Country

**Last Update Date** X/YY/ZZ

**Responsible Authority**  
Name

**Editor**  
Name

**Editor**  
Name

**Editor**  
Name

**Editor**  
Name

**Editor**  
Name

**Editor**  
Name

**Editor**  
Name

**1 Pilot Timeline**

V1 V2 V3 V4 V5 V6 V7 V8 V9 V10 V11 V12

**2 Governance**

**Society**  
Write here

**Government**  
Write here

**Academia**  
Write here

**Industry**  
Write here

**Who coordinates**  
**Who monitors**

**3 Thematic Scope**

**Social context of the city**  
Write here

**Energy poverty data**  
Write here

**Current policy to face energy poverty**  
Write here

**Wellbased integration**  
Write here

**4 Target Population**

**Individual lifestyle factors**  
Write here

**Living and working conditions**  
Write here

**Individual characteristics**  
Write here

**Social and community networks**  
Write here

**General socio-economic, cultural and environmental conditions**  
Write here

**5 Objectives of the WUP**

**Newspaper headline**

**Newspaper sub-headline**

**6 Overview of Actions**

**Local level**  
Write here

**National level**  
Write here

**7 Impact Indicators**

**Wellbased Indicators**

**X Pilot Indicators**

Figure 2. Mural template to be filled on-line by pilot cities with main aspects of their WUP

## Limitations

Some limitations have been found in the process of D2.3 completion. Namely:

- Differences in length and deepness of the population characterisation can be appreciated in each pilot case. This is mainly due to:
  - (i) Different availability of data in each country. Sources of information (statistics institutes, official programmes, focus studies, etc) and granularity of data (e.g. whether it is possible to find data from a neighbourhood, from the city or only from the country) vary significantly

from a place to another. Equally, non-European countries could not benefit from some of the available European statistics.

- (ii) Different analysis approach of each pilot. The main point of the characterisation was to add value to the WUP actions design and therefore each pilot city has decided where to focus based on its program.
- Differences in the degree of detail in WUP descriptions. This is mainly due to the different stages of development of each one of them at this time of the process. Details that pilots were not able to provide in this deliverable will be included in the next one, D3.1. Implementation Plan for each pilot site.

## 1.5. Structure of this deliverable

The structure of this deliverable is divided as follows, eight additional chapters and annexes:

- **Chapters from 2 to 8:** Wellbased Urban Programmes (WUPs) of the seven pilot cities. At the beginning of each chapter, a three-pages summary of the WUP is provided, aimed at facilitating a general overview of the WUP and a comparative analysis between them.
- **Chapter 9:** Brief conclusions and reflections on the seven programmes, outlining their specificities and/or common patterns.
- **Annexes:** three annexes of Chapters 3, 6 and 8 (Edirne, Óbuda - Békásmegyer and Valencia WUPs, respectively) with full data collection on their target population.

## 1.6. Content of the Wellbased Urban Programme

As established in D2.2, the following aspects have been described for each WUP in this document:

- **Thematic scope:** an overall description of the general context of the WUP, including (i) some general figures of the city especially focussed on vulnerable population, (ii) available data about Energy Poverty in the country, city and/or area of intervention, (iii) current policies to tackle Energy Poverty and (iv) the integration of the WUP into other related municipal plans and local projects, if any. Sources of information vary from city to city, including, among others, EPAH<sup>7</sup>, EUROSTAT<sup>8</sup>, national plans, local strategies from councils, statistics offices, etc.

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<sup>7</sup> [https://energy-poverty.ec.europa.eu/index\\_es](https://energy-poverty.ec.europa.eu/index_es)

<sup>8</sup> <https://ec.europa.eu/eurostat>

- **Target population:** a broad characterisation of the area of intervention based on the social ecological model of Dahlgren and Whitehead<sup>9</sup> mentioned above.

This section includes a final analysis in each pilot chapter (section called “Target population data analysis and conclusions”) that summarises the data collected previously. The aim is to understand how the programme can better adapt to its population, identifying needs to minimize through the project actions, as well as assets to enhance<sup>10</sup>. Equally, in this analysis, we identify the causes of EP in the specific area of intervention and link them with the potential effects on health, as well as putting them in relation with WB interventions. This relation is shown in the figures elaborated for each pilot, representing the pathway of Energy Poverty causes and effects in health. The aim of this study is to link the project intervention with the expected impacts.<sup>11</sup>

- **WUP Actions:** concrete actions to be realised within the programme. They are firstly listed under the layers of the social ecological model and then described in detail in the last section of each pilot chapter, including a preliminary timeline when relevant (more implementation details will be presented in the next Deliverable 3.1)
- **WUP Objectives:** definition of specific objectives of the WUP. This section includes as well an imaginary newspaper of the future to envision the medium-term impact of the WUP.
- **WUP Indicators:** information about project indicators, namely: (i) how they will gather and make available data for the common indicators established in the Grant Agreement and (ii) specific data sets and/or health measures, if any, considered in pilot sites according to their target or city specificity.
- **Overview:** in the overview of the WUPs, main information regarding identification, thematic scope, target population, objectives and actions has been summarised. In the target population description (second page of each overview) we have reflected some of the main social determinants of health, identified in the context of Energy Poverty, according to the information collected by each pilot city (e.g. housing conditions, education, supportive policies...). A further analysis (third page of each overview) links them with the actions carried out by each pilot, outlining what social determinants are likely to be impacted by the pilot actions.

<sup>9</sup> Dahlgren, G., & Whitehead, M. (2007). European strategies for tackling social inequities in health: Levelling up Part 2 (p. 149). WHO Collaborating Centre for Policy Research on Social Determinants of Health. [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0018/103824/E89384.pdf](http://www.euro.who.int/__data/assets/pdf_file/0018/103824/E89384.pdf)

<sup>10</sup> Based on the Asset Model developed by Morgan and Ziglio (2007) that defines a health asset as any factor (or resource), which enhances the ability of individuals, communities and populations to maintain and sustain health and well-being. It proposes to complement the “need reduction” thinking with an “assets maximisation” approach in community intervention programmes.

<sup>11</sup> Inspired by the pathways of health processes developed by E. Ziglio

# Chapter 2: Edirne (Turkey)

## 2.1. Overview of the WUP (Edirne, Turkey)



PILOTSITE  
**EDIRNE**  
(Turkey)

### URBAN PROGRAM

**PERIOD** Pilot activities: 12 months  
(AUG 2022/JAN 2023 to JUL 2023/DEC 2023)<sup>1</sup>  
+ follow-up audit 6 months after the  
end of the project activities

**RESPONSIBLE  
AUTHORITY** Municipality of Edirne (EDM)

### OTHER KEY STAKEHOLDERS

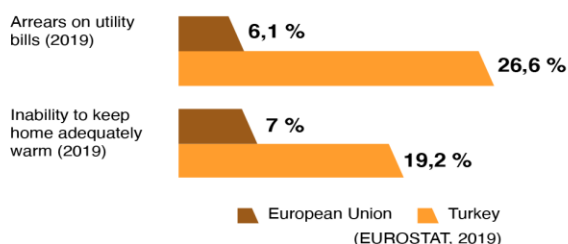
**Zero Discrimination Association (ZDA)**: data collection and analysis, community engagement  
**Demir Enerji (DEM)**: support and advice, and devices purchase  
**The Urban Local Alliance**: socio health audits, recruitment, awareness raising, etc.

### THEMATIC SCOPE

#### TURKEY: ENERGY POVERTY COUNTRY DATA

- About one-quarter of households are energy poor and about half of the lowest income households are at risk of energy poverty (2017)
- The share of energy poor households decreased from 2003 to 2017 (from 36% to 23%)
- 72% have no natural gas, 63% have no floor heater, 11.5% have no hot water, and 10.3% have no toilet (2017) (Selçuk et al., 2019).

#### Performance relative to EU average



#### EDIRNE: SOCIAL CONTEXT OF THE CITY

- Total population: 407,763
- Relatively young population: 2,6% over 65
- Economic dependency ratio: 28%
- International migrants increased by 124,9% in 2019
- Unemployment rate of the region (2020): 9%

#### Energy poverty and housing local conditions

In Edirne Merkez district (area of intervention), there are three levels of housing conditions:

- Good: ~ 13, 000 people. Irregular income, fair habitat conditions
- Medium: ~ 6,000 people. Irregular income, earnings mostly depend on scrap collecting, city cleaning jobs. Decrepit habitat conditions
- Bad: ~ 6,000 people, materially deprived, very poor health and wellbeing indicators. Dilapidated, ramshackle homes

#### NATIONAL CURRENT POLICY TO TACKLE ENERGY POVERTY

- Natural gas provision to new districts during 2017-2019 (2.5M people reached) (GAZBİR, 2019), under the coordination of the Ministry of Energy and Natural Resources, Energy Market Regulatory Authority and natural gas distribution companies

#### INTEGRATION IN MUNICIPAL ACTION PLANS AND OTHER LOCAL PROJECTS

- 2020-2024 Municipal Strategic Plans with focus on Roma neighbourhoods (from social cohesion to home improvements)
- Romacted: joint program run by the European Union and the Council of Europe with the aim of empowering Roma at local level
- 2019-2025 commitments as a member of National Healthy Cities Association (WHO):
  - accesible and clean energy (SDG goal 7)
  - urban spaces design that increase health and wellbeing
  - social welfare improvements and access to common goods and services

<sup>1</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)



### TARGET POPULATION

#### INTERVENTION AREA

Neighborhoods of Edirne Merkez (Central) district: Çavuşbey, Yeniimaret, Yıldırım Beyazıt, Menzilahir, Yıldırım Hacı Sarraf and Umurbey

#### TOTAL POPULATION

(Edirne Merkez district): 180,901

#### VULNERABLE POPULATION

Elderly, single-parent families, unemployed, former convicted and disadvantaged individuals in predominantly Roma neighbourhoods

#### NUMBER OF WUP PARTICIPANTS

125 for intervention group (+ 125 for control group) located in 50 houses

### MAIN EP SOCIAL DETERMINANTS OF HEALTH IN WUP TARGET POPULATION<sup>2</sup>

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#### CITY INFRASTRUCTURE

☺ Green zones: more in Yeniimaret and Umurbey neighbourhoods (mostly agricultural land)

#### MUNICIPALITY COMMITMENT

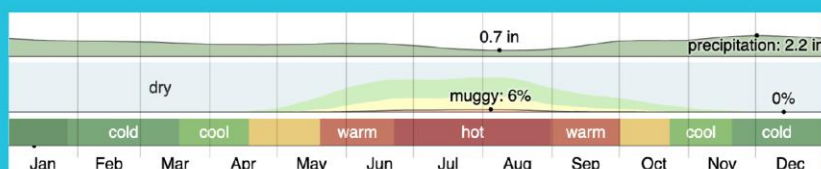
☺ 2020-2024 Strategic Plan of Edirne municipality focused on Roma neighbourhoods

#### ENERGY PRICES

☹ Rising energy prices

#### WEATHER AND AIR CONDITIONS

☹ Hard winters-lowest T: -19,5°C  
☹ Hard summers-highest T: 44,1°C



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#### WORKING CONDITIONS

☹ Many do not have regular jobs  
☹ Daily jobs such as scrap collecting and dependence on social assistance  
☹ Mounting debt with neighbourhoods' markets  
☹ Active labour force programs in the city

#### HOUSING CONDITION

☹ Substandard houses with leaking roofs (or no roofs at all, no windows sills,

holes in the walls and mould  
☹ Many houses without hot water (water heating on a stove)  
☹ Some houses without water system (shared pipe in the yard)  
☹ 10% of the houses in three of the project neighbourhoods do not have an indoor toilet or kitchen or indoor water system  
☹ Poor quality fuel

#### EDUCATION

☹ Low education level  
☹ Relatively high drop-out rate

#### OTHER LIVING CONDITIONS

☹ High density population  
☹ Cohabitation of extended families as a way of coping with material deprivation  
☹ Early marriages

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#### ASSOCIATIVE NETWORK

☺ Many grassroots organizations, especially of Roma  
☺ High solidarity as coping mechanism with deprivation

#### KEY COMMUNITY ACTORS

☺ Neighbourhoods administrative units (mukhtars), neighbourhoods committees, Roma associations...

#### UNHEALTHY / HEALTHY LIFESTYLES AND HABITS

☹ Below average health conditions  
☹ Chronic diseases set in early due to mal-nutrition  
☹ Bronchitis and chronic cough are common among babies toddlers  
☹ At mid 20s, chronic diseases such as diabetes and high blood pressure  
☹ Substance use

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• Young population (5,7% over 65 in Edirne Merkez)  
• Roma settlements





### OBJECTIVE

- Reducing fuel poverty and its impacts on health and welfare in some vulnerable neighbourhoods, through actions across different levels
- Assessing about how to improve home conditions and health (through home visits, installation of efficiency kits and heating systems and health parameters measurements)
- Advising participants for optimization of their bills and solving debt problems



### ACTIONS & PILOT-SPECIFIC RESULT INDICATORS

#### LAYER 1 · Individual Lifestyle factors

- Socio-energy audits

1 socio-energy audit per participant

#### LAYER 2 · Social and Community networks

- Training professionals on the detection of energy efficiency

Min. 4 informal meetings  
Min. 2 trainings on EP detection to professionals  
Information requests from the public about the project to the municipality (4 requests/month)  
Min. 10 participant per activity

#### LAYER 3 · Living and working conditions

- Building improvements

#### LAYER 4 · General socio-economic, cultural and environmental conditions

- Policy recommendations to the governance on EP

Min. 4 internal meetings for EP  
Policy proposal

### WUP INTERVENTION IN MAIN EP SOCIAL DETERMINANTS OF HEALTH<sup>3</sup>

LAYER 0	LAYER 1	LAYER 2	LAYER 3	LAYER 4
Due to the sociodemographic characteristics of the target population and/or the WUP focus, a special impact is expected on:	HEALTHY LIFESTYLES AND HABITS	ASSOCIATIVE NETWORK	UNEMPLOYMENT LEVEL	ENVIRONMENTAL AND WEATHER CONDITIONS
AGED POPULATION	ENERGY EFFICIENCY HABITS	KEY COMMUNITY ACTORS AND PROFESSIONALS	FINANCIAL SITUATION, INCLUDING DEBTS	CITY INFRASTRUCTURE (GREEN ZONES, BIKELANES...)
LARGE FAMILIES	MENTAL HEALTH AND ATTITUDE	UNWANTED LONELINESS/ SOCIAL ISOLATION	STRUCTURAL HOUSING CONDITIONS (INSULATION...)	SUPPORTIVE POLICIES AGAINST EP
SINGLE PARENTS			ENERGY EFFICIENCY MEASURES AT HOME	GENERAL PUBLIC AWARENESS
FAMILIES WITH NO CHILDREN			FORMAL EDUCATION LEVEL	ENERGY PRICES
ETHNIC MINORITIES			HEALTH CITY EQUIPMENT	

<sup>3</sup> The coloured areas represent the main categories of social determinants of health related to EP where the WUP will intervene. Only the ones with a direct link to the actions planned have been represented in order to outline the specificities of each pilot city.

## 2.2. Identification of the WUP

- **Title**

Wellbased Urban Programme in the City of Edirne

- **Period it covers**

Pilot activities: 12 months (from August 2022/Jan. 2023 to July 2023/Dec. 2023)<sup>12</sup>

+ follow-up audit 6 months after the end of the project activities

- **Responsible authority**

Municipality of Edirne (EDM)

- **Stakeholders and their responsibilities**

- Municipality of Edirne (EDM): Energy audits, preparation of materials list, procurement, installation, follow up result, health measurement, training about energy efficiency.
- Zero Discrimination Association (ZDA) will predominantly be involved in data collection and analysis; integrate a gender lens and facilitate community participation.
- Demir Enerji (DEM) will participate in the pilot mainly by giving support and advice related to WPs and purchase the devices to be used for the intervention group in the city.
- The Local Alliance will contribute in the WUP implementation through their experience at local level (providing contact network, socio health audits, recruitment, awareness raising).

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<sup>12</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)

## 2.3. Thematic scope of the WUP

### 2.3.1. Social context of the city

The total population of Edirne in 2020 is 407,763 (2.6% of Turkey), while the population of the Centre is 180,901. The central district of Edirne, which is a border city on the highway connecting Turkey to Europe, is 7 km from Greece and 17 km from Bulgaria. Edirne's immigration number in 2019 is 16,864 and the net immigration rate is 0.25. The number of elderly population (65+) in Edirne Centre is 20,664 in 2020 (11.4% of the total population). 55% of this population is female and 45% is male. Edirne Merkez district's ratio of older population is higher than the city average. Edirne has a young population (young people under 25 are 52% of the total population) with an economic dependency ratio of 28%. Fast industrialization from agricultural productions causes immigration from rural to urban areas. Energy poverty is widespread affecting vulnerable groups of society such as households with low income including the elderly and Roma people. According to İŞKUR data, the number of registered unemployed in Edirne in 2015 was 10695. 53.7% of this number consists of women and 46.3% of them are men. In 2015, 42.4 percent of those placed by İŞKUR were women and 57.6% were men. Average income of the lowest income household is ₺14,858 for the TR21 Region (Edirne, Tekirdağ and Kırklareli).<sup>13</sup>

Edirne municipality included in its 2020-2024 Strategic Plans a specific aim to develop sustainable neighbourhoods in Roma neighbourhoods, which includes an assortment of measures from social cohesion improvement to home upgrade. Edirne Municipality's main priorities are urban equality and development, environment and society. One of its objectives is the creation of a peaceful and equal social environment for citizens. For this reason, through WELLBASED, and specifically through the pilot design, preparation, implementation and evaluation, in one of the 6 cities, EDM will work towards the reduction of Energy Poverty and thus the decrease of inequalities in the society, by helping the disadvantaged groups (Roma people) and districts in order to enhance their conditions and to empower them and facilitate social inclusion. EDM will lead the pilot implementation in Turkey with the support of DEM and ZDA. Positive results stemming from monitoring and evaluation of current and future interventions will foster the replication all around the city.

### 2.3.2. Energy poverty data

According to the most recent data available, about one-quarter of households in Turkey are energy poor while nearly half of the households, which have the lowest income levels, were found to carry the risk of

<sup>13</sup> <https://media.iskur.gov.tr/15015/edirne.pdf>

facing Energy Poverty. Energy poverty in Turkey is calculated according to the definition: “if a household needs to spend more than 10% of their income on energy to have enough heat, it is [considered] energy poor”. Additionally, nearly half of the households, which have the lowest income levels, were found to carry the risk of facing Energy Poverty. Another interesting data is that the share of energy poor households was observed to decrease from 2003 to 2017 (Selçuk et al., 2019, pp.283). While the rate of those who did not own a house and did not pay housing rent increased from 4.31% in 2003 to 14.85% in 2017, the ratio of those who stated that they live in rent decreased from 21.95% to 18.72%. This decrease stems from an increase of cohabitation. For instance, married couples move in with their parents or nuclear families who are close relatives share a house. (Selcuk et al., 2019).

In 2003, the highest type of energy-poor households was couples without children with 15.45%. Energy-poor households following this type of household are nuclear families (a couple and their dependent children) with two children (14.05%), all of whom are younger than the age of 18, nuclear families with three or more children (10.35%), all of whom are younger than 18, and single children (10.13%). In 2017, similar to 2003, couples without children were the highest energy-poor households with 25.18%, followed by a single adult family with 19.13% and patriarchal or extended families with 17.77%. Similarly, in the 2003 and 2017 surveys, although the options for housing types were different, in 2003, 50.7% of the energy-poor households stated that they lived in detached houses, while 2.81% stated that they lived in squatter settlements. In 2017, the share of households with energy-poor living in detached houses is 60.38%. In 2017, there is no separate an option for squatter settlements (Selçuk et al., 2019, pp.295).

*Table 1. Primary fuel used by energy-poor households in Turkey (%)*

*Source: Selçuk et al. 2019, pp. 295*

	2003	2017
Wood	74.77	46.74
Coal	10.59	20.95
Natural Gas	7.44	26.89
Electricity	1.31	3.47
Dung	1.22	1.04
LPG	1.37	0.07
Fuel Oil	1.83	0.04

While 36% of households were energy poor in 2003, this ratio declined to 23% in 2017. When the characteristics and habits of energy-poor households are examined, it was found that in 2017, 72% had no natural gas, 63% had no floor heater, 11.5% had no hot water, and 10.3% had no toilet. On the other hand, 90% of the households are indebted, 76.5% do not make savings, 34% do not have housing ownership and 82% do not have the habit of eating out (Selçuk et al., 2019, pp. 296-7). However, in the face of energy price hikes in 2021 and increasing inflation in Turkey, the drop in the ratio of energy households should be treated with great caution. New data might reveal an increasing percentage.

### **2.3.3. Current policy to tackle Energy Poverty (if it exists; national definition, if any)**

In 2017, under the coordination of the Ministry of Energy and Natural Resources, Energy Market Regulatory Authority and natural gas distribution companies, a new aim to provide natural gas to 222 new districts by the end of 2019 was announced. Natural gas was supplied to 94 districts, and the distribution network reached 1.8 million citizens. With the further provision of natural gas supply to 98 districts in total in 2018, 2.5 million people were targeted. (GAZBİR, 2019, p.6).<sup>14</sup>

### **2.3.4. Integration in municipal action plans and other local projects**

This WUP is integrated within other municipal programmes. Edirne municipality included a specific aim to develop sustainable neighbourhoods among Roma people in its 2020-2024 Strategic Plan, to improve homes, social cohesion, etc.

The municipality has applied to the Dosta Prize in 2019 (prize instated by The European Alliance of Cities and Regions for Roma Inclusion). Further, ROMACTED Program (<https://pjp-eu.coe.int/en/web/roma-local-governance>) of the EU and the Council of Europe related to good governance and Roma empowerment is being implemented in Edirne with strong involvement of EDM.

Additionally, Edirne Municipality is a member of the national Healthy Cities Association within the scope of the WHO Healthy Cities Project. In this context, during Phase VII (2019-2025) Edirne has committed the following:

- Achieving "Goal 7: Accessible and Clean Energy" from the Sustainable Development Goals during Phase VII (2019-2025);

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<sup>14</sup> Association of Natural Gas Distributors in Turkey (GAZBİR), "Energy Poverty Outlook in the world and in Turkey ", 2019, pp.1-8, [https://enerji.mmo.org.tr/wp-content/uploads/2019/06/Dunyada\\_ve\\_Turkiye\\_de\\_Enerji\\_Yoksullugu\\_Gorunumu.pdf](https://enerji.mmo.org.tr/wp-content/uploads/2019/06/Dunyada_ve_Turkiye_de_Enerji_Yoksullugu_Gorunumu.pdf)

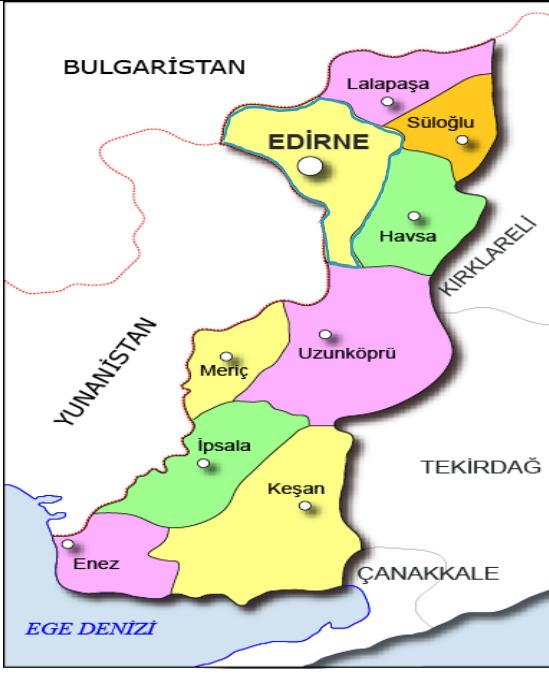
- Theme 2. Working within the scope of designing urban spaces that increase health and well-being
- Theme 4. Working to improve social welfare and access to common goods and services

Throughout this WUP, Edirne tries to involve, directly engage and count on the participation of key local stakeholders and the local community in the pilot activities from the very beginning. Collaboration, cooperation and active participation are key to plan the right strategies in order to implement a local urban programme to combat Energy Poverty in the city. The areas of collaboration with the stakeholders within the project include:

- Planning of pilot interventions through focus groups
- Recruitment of participants and identification of potential participants
- Deployment of devices
- Accessing and interpreting of data
- Implementation of the different activities of the pilot: socio health energy audits, empowerment activities
- Information and awareness raising campaigns as well as building of/positive narratives
- Support to dissemination of project

## 2.4. Target population

### 2.4.1. Target population data collection and classification under the socio-ecological model

TARGET POPULATION OF YOUR WUP	
<p>The selected neighbourhoods for intervention are located in Edirne Merkez (Central) district (Figure 1). Edirne Merkez, with a surface area of 955 km<sup>2</sup>, is the third largest district of the province in terms of area.</p> <p>The target population is spread over the Çavuşbey, Menzilahır, Yeniimaret, Yıldırım and Umurbey neighborhoods of this district. These neighborhoods are predominantly Roma neighborhoods and interventions will be made to those living in these neighborhoods within the scope of the WELLBASED project. The main features classified under the social ecological model are explained in the following headings. Full data are shown in the tables of the Annex 1.</p>	 <p>The map shows the districts of Edirne, Turkey, with various neighborhoods labeled. The districts are color-coded: Lalapaşa (pink), Süloğlu (orange), Havsa (green), Meriç (yellow), Uzunköprü (pink), Keşan (yellow), Enez (pink), and İpsala (green). The map also shows the surrounding regions: BULGARİSTAN to the north, YUNANİSTAN to the west, KIRKLARELİ to the east, and TEKİRDAĞ and ÇANAKKALE to the south. The EGE DENİZİ (Aegean Sea) is visible to the southwest.</p>
<p>Figure 3. Districts of Edirne</p>	
Population: socio demographic characteristics	
<p>The population of Edirne Merkez district is 180,901 (TURKSTAT, 2020). As the total population of Edirne is 407,763, Edirne Merkez's population constitutes 44% of the city. Edirne is Merkez is the district with the highest population density in the Edirne Province. It is followed by Keşan with 20%, Uzunköprü with 15%, İpsala with 7%, Havsa with 5%, Enez and Meriç with 3% and Lalapaşa and Süloğlu with 2%. Among the pilot neighbourhoods Çavuşbey is the neighbourhood with highest population density, followed by Yeniimaret, Yıldırım Beyazıt, Menzilahır, Yıldırım Hacı Sarraf and Umurbey. The gender breakdown is presented in Annex 1.</p> <p>According to TURKSTAT data for the year 2020, the male population over the age of 65 in Edirne Merkez district is 9,292 (5.1% of the total population of the district), and the female population is 11,372 (6.3% of the total population of the district). The total male population over the age of 65 in the city is 28,433 (2.3% of the total</p>	

population in the city) and the female population is 34,684 (2.8% of the total population in the city). Accordingly, Edirne Merkez district's ratio of older population is higher than the city average of Edirne.

In 2019, 54.4% of the migrants were men and 45.6% were women. Of the population coming from abroad, 98 thousand 554 were citizens of the Republic of Turkey, and 578 thousand 488 were foreign nationals. According to Migration Administration total number of migrants, including the ones under temporary protection reached more than 5 million by the end of 2021. The number of international migrants in Edirne, increased by 124.9% in 2019 compared to the previous year. Out of 3013 international migrants arriving Edirne in 2019, 50.3% was male and 49.7% was female. Table 2 shows that the number of migrants in Edirne is 16,864 in total according to 2019 data. The net migration rate is 0.25 (TURKSTAT).

Table 2. Migration status in Edirne, 2019

Source: TURKSTAT

City	Population	Migration	Immigration	Net Migration	Net Migration Rate
Edirne	413,903	16,864	16,761	103	0.25

Table 3 shows the distribution of the foreign population in Edirne by gender.

Table 3. Foreign population in Edirne, 2020

Source: TURKSTAT

District	Total Foreign National Population			0-14 Age Group Foreign National Population			15-64 Age Group Foreign National Population			Foreign National Population aged 65 and over		
	Total	M	W	Total	M	W	Total	M	W	Total	M	W
Edirne Merkez	<b>4866</b>	2305	2561	<b>329</b>	168	161	<b>4330</b>	2031	2299	<b>207</b>	106	101
W: Women, M: Men												

Table 4 shows the average income (TL) of Turkey and the TR21 Region where Edirne is located.

Table 4. Average income of the household

	2018	2019	2020
TR21 Region (Edirne, Tekirdağ and Kırklareli)	₺ 56,239	₺ 58,779	₺ 63,284
Turkey	₺ 51,374	₺ 59,873	₺ 69,349

Table 5 shows the average income of the household with the lowest income.



Table 5. Average income of the lowest income household

	2018	2019	2020
TR21 Region (Edirne, Tekirdağ and Kırklareli)	₺ 12,846	₺ 14,218	₺ 14,858
Turkey	₺ 11,959	₺ 14,549	₺ 14,575

### Layer 1: Individual lifestyle factors

#### HEALTH

Figure 6 shows the crude death rate of circulatory system diseases by province and permanent residence. According to the figure, the crude death rate of Edirne province in 2019 is higher than 2.84 per thousand<sup>15</sup>.

Figure 5 shows the crude death rate of respiratory system diseases by provinces and permanent residence in Turkey. According to the figure, the crude death rate of Edirne province in 2019 appears to be over 1.00 per thousand. Edirne is one of the 20 provinces among 81 provinces of Turkey with a crude death rate of 1 above the respiratory system diseases by residence.

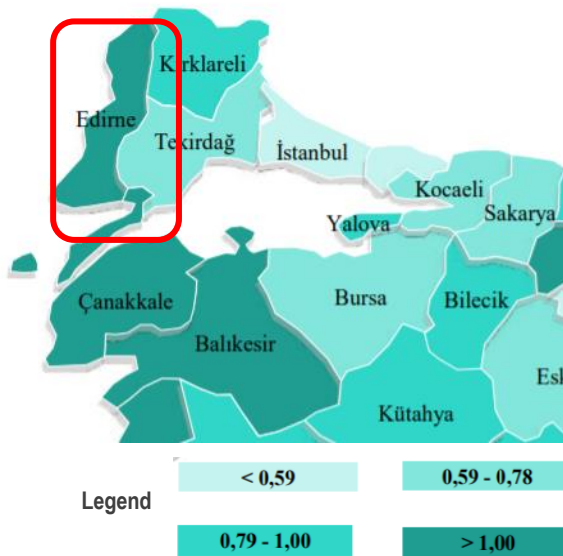


Figure 5. Circulatory System Diseases by Province and Permanent Residence (ICD 10: 100-199) Crude Death Rate, (%), 2019

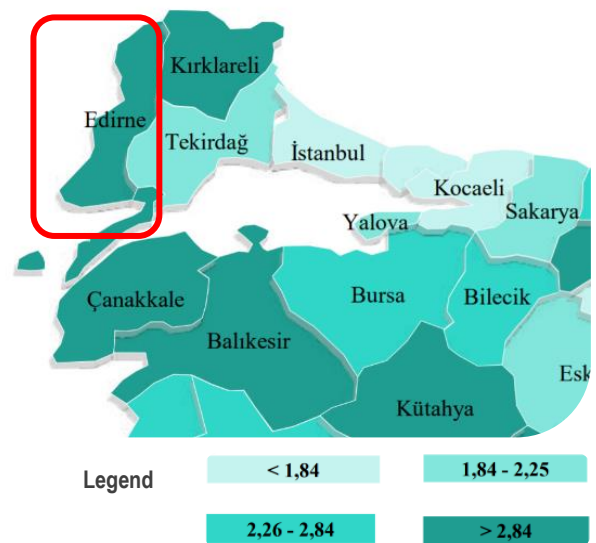


Figure 4: Diseases of the Respiratory System by Province and Permanent Residence (ICD 10: J00-J99) Crude Death Rate, (%), 2019

Other relevant health figures for Edirne are:

<sup>15</sup> Data source: Edirne-Turkey comparison, 2019 Turkey Health Statistics Yearbook, Ministry of Health (health statistics yearbook of the neighborhoods is not published yet) <https://sbsgm.saglik.gov.tr/Eklenti/40564/0/saglik-istatistikleri-yilligi-2019pdf.pdf>

- Imbalance in social determinants of health <sup>16</sup>
- Elderly dependent ratio is high
- Infant mortality rate is in the range of "6.9-8.2 / 1000 live births"
- Maternal mortality rate per 100,000 live births "=0"
- Neoplasm by Province and Permanent Residence (ICD 10: C00-D48) Crude Mortality Rate, (‰) Edirne: "> 1.27"

## Layer 2: Social and community networks

There are neighbourhood administrative units. Mukhtars are elected as the chief of this unit. There are active neighbourhood committees and grassroots organizations/community-based organizations in the pilot neighbourhoods. These are Edirne Roma People Education Volunteers Association, Thrace Young Roma People Association, Union of Roma People of Balkans, Edirne Association of Research, development and cooperation of Roma Culture and Edirne Roma Associations Federation. These organizations support to the project. In addition, the Chamber of Mechanical Engineers provide technical support for building improvements within the scope of the project. Linkages with other initiatives are also present, especially the ones related to the 2020-2024 Strategic Plan of Edirne municipality to develop sustainable livelihoods in Roma neighbourhoods.

## Layer 3: Living and working conditions

### WORKING CONDITIONS

According to İŞKUR data, the number of registered unemployed in Edirne in 2015 was 10695. 53.7% of this number consists of women and 46.3% of them are men. The highest number of registered unemployed are in the Physical Worker (General) profession. In 2015, 42.4 percent of those placed by İŞKUR were women and 57.6% were men. According to the results of the Edirne Province Labor Market Research in 2020, the share of men in the total employees in the enterprises within the scope of the research was determined as 57.5%, while the share of women was 42.5%. The sector in which the highest number of female workers are employed in Edirne is the manufacturing sector. The intensity of female employment differs between sectors. The sector with the highest rate of female employees in Edirne is the human health and social work activities sector. The sectors with a relatively higher rate of female employees in Turkey when compared to other sectors are sectors such as education, human health and social work activities, and finance and insurance.

*Table 6. Regional workforce indicators for 2020*

*Source: İŞKUR, Labor Market Research, 2021*

TR21 Region (Tekirdağ, Edirne, Kırklareli)	Total	Women	Men
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<sup>16</sup> Data source: <https://www.sdplatform.com/Dergi/1228/Sagligin-sosyal-belirleyicileri.aspx>

<b>Population aged 15 and over (Thousand people)</b>	1,456	721	735
<b>Workforce (Thousand people)</b>	815	278	537
<b>Employed (Thousand People)</b>	741	242	499
<b>Unemployed (Thousand People)</b>	73	35	38
<b>Population not included in the labor force (Thousand People)</b>	642	444	198
<b>Labor force participation rate (%)</b>	55.9	38.5	73.1
<b>Employment rate (%)</b>	50.9	33.6	67.9
<b>Unemployment rate (%)</b>	9.0	12.7	7.1

The vacant job rate in Edirne province was determined as 1.0%. In Turkey, the vacant job rate is 1.3%, and the province of Edirne is behind Turkey's average in terms of job vacancies. When the distribution of vacant jobs by occupational groups is examined; It has been determined that the highest number of vacancies are in the Facility and Machinery Operators and Assemblers occupational group, and there are 201 vacancies in this occupation group during the research period. The second occupational group with the highest number of vacancies in Edirne; Craftsmen and Workers in Related Jobs is a profession group.

*Table 7. Occupations with the highest number of job placements in 2021 (January – October)*

*Source: İŞKUR, Labor Market Research, 2021*

<b>Job</b>	<b>Number of job placements</b>
<b>Garment Worker</b>	357
<b>Sales Consultant / Specialist</b>	346
<b>Machinist (Sewing)</b>	311
<b>Waiter (Service Person)</b>	304
<b>Cashier</b>	241
<b>Physical Worker (General)</b>	230
<b>Customer Service Officer/Assistant</b>	223
<b>Presser</b>	138
<b>Coil-Folding-Twisting Machine Operator</b>	124
<b>Cleaning staff</b>	103

On-the-job training programs, which have come to the fore in recent years, are considered as an important active labour force program for the participants in terms of getting practical training and gaining experience in the workplace and finding a job more easily afterwards.

Table 8. Number of On-the-Job Training Program Beneficiaries by Years

Source: İŞKUR, Labor Market Research, 2021

Year	Women	Men	Total
2016	651	547	1198
2017	1154	497	1651
2018	996	392	1388
2019	1070	536	1606
2020	663	333	996
2021 Jan-Oct	661	312	973

## EDUCATION

Education level in Edirne is higher than Turkey's average. However, it should be noted that the average educational level in pilot districts is much lower. However, comparable data at the neighbourhood level does not exist.

Table 9. Education status in Edirne (over 6 year old)

Source: TURKSTAT, 2019

	Total	Men	Women
Illiterate and out of school	12,620	5192	7428
Primary school (1-4 <sup>th</sup> grades)	35,069	15052	20,017
Primary education	12,549	6829	5720
Middle School (4-8 <sup>th</sup> grades)	23,703	13638	10,065
High school (8-12 <sup>th</sup> grades)	48,766	25503	23,263
Associate and Undergraduate Degree	30,504	15708	14,796
Master Degree	3,679	1860	1,819
PhD Degree	1,378	739	639

Unknown	977	479	498
Total	169,245	85,000	84,245

## HOUSING CONDITIONS

In Edirne, the general situation in the neighbourhoods where mostly Roma people live is as in Figure 6. These neighbourhoods are located in Edirne Merkez district. Neighbourhoods are roughly divided into 3 categories taking into account-economic development status:

- Good: 3 neighbourhoods, ~ 13, 000 a good portion of households have regular income. Habitat conditions are fair
- Medium: ~ 6,000 people. Households have irregular income. Earnings mostly depend on scrap collecting, city cleaning jobs. Habitat conditions; decrepit
- Bad: ~ 6,000 people, materially deprived, very poor health and wellbeing indicators, many social problems, school attendance very low, domestic violence widespread, high debt levels and dependence on in kind state aid for subsistence. Habitat conditions; dilapidated, ramshackle homes.



Figure 6: Conditions of Roma neighborhood's homes

## NATURAL GAS CONSUMPTION

The data obtained from TURKSTAT about the use of natural gas in the neighbourhoods in Edirne Centre where mostly Roma live are presented in this section. This data gives us an idea about which neighbourhoods has the most natural gas consumption and the share of natural gas use by province. The use of natural gas pollutes the air less than coal and causes less harm to human health. Therefore, the prevalence of natural gas is important.

The total natural gas consumption of the residences in the districts of Edirne and Edirne Merkez district in 2020 is given in Table 9 on a monthly basis. According to the table, the neighbourhoods with the highest natural gas consumption are Yıldırım, Çavuşbey, Yeniimaret, Umurbey and Menzilahır, respectively. The total natural gas consumption of these neighbourhoods corresponds to 5.8% of Edirne province. Most of the residents of these neighbourhoods try to stay warm by burning fuels such as coal.

Table 10. Total natural gas consumptions for houses in 2020 (Sm<sup>3</sup>)

	Umurbey	Çavuşbey	Yeniimaret	Yıldırım	Menzilahir	EDİRNE
<b>Total</b>	225,016	656,037	566,309	1,344,921	209,805	51,250,011
<b>Number of Subscribers</b>	182	519	528	1,100	167	59,600

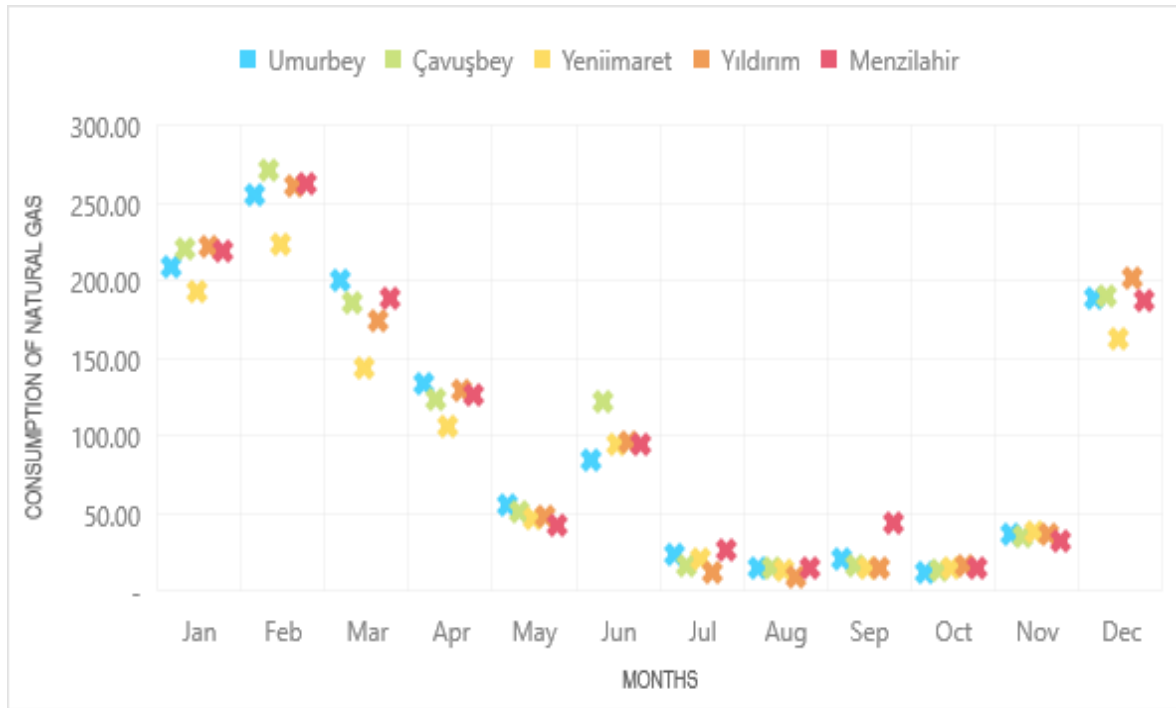


Figure 7. Average natural gas consumption for houses in 2020 (Sm<sup>3</sup>)

#### CITY FACILITIES (HEALTH, EDUCATION, ETC.)

The number of applications per physician in the field of health in Turkey is 5055 in 2019 (TURKSTAT, 2019). According to TURKSTAT 2019 data, there are 11 hospitals in total in Edirne, including 7 hospitals, 3 private hospitals and 1 university hospital, affiliated to the Ministry of Health. While the total bed capacity in Edirne is 46 in state hospitals; There are 164 in private hospitals.

Good quality of life is also directly related to issues such as the abundance of libraries and educational institutions in the city. There are 8 libraries in total in Edirne. 2 of these libraries are in the Centre, 2 are in İpsala, and the rest are in the districts of Havsa, İpsala, Keşan, Süloğlu and Uzunköprü. In the city, apart from 1 university (Trakya University), there are 180 primary schools, 20 high schools, 15 vocational high schools and equivalent schools, 3 private schools, 2 private kindergartens and 94 pre-school kindergartens.<sup>17</sup>



#### CLIMATE CONDITIONS IN THE CITY OF EDIRNE



Figure 8. Edirne Merkez district

Source: <https://webgis.edirne.bel.tr/keos/>

Edirne is a transition region under the influence of both Mediterranean climate and continental climate peculiar to Central Europe. The region shows different climatic characteristics from time to time and from place to place with the effects of the Black Sea, Aegean and Marmara seas. The winters are warm and rainy when the Mediterranean climate shows its effect, and it is quite harsh and snowy when the continental climate shows its effect. Summers are hot and dry, and spring is rainy. A harsh continental climate prevails in the Ergene Basin, which is important in terms of plant production in the province. The fact that this region, which is limited to the mountains, is closed to the softening effects from the seas reveals this climate structure. The annual average temperature is 13.7°C, the highest temperature is 44.1°C in July, the lowest temperature is -19.5°C in January. The annual average precipitation is 601.4 mm and the annual average relative humidity is 70%.<sup>18</sup> In the case of green areas, intervention districts' green area total is lower than the city average.

<sup>17</sup> <https://www.edirne.bel.tr/s/genel-bilgi-8.html>

<sup>18</sup> Data source: <https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?m=EDIRNE>

## GREEN AREAS

More green space indicates more fresh air. In this section, information is presented about the amount of green space in the neighbourhoods in Edirne Central district where intervention will be made. Table 2 shows the amount of green space in the neighbourhoods where the intervention will be made within the scope of the Wellbased project and where predominantly Roma people live. According to the table, it is seen that the maximum square meter on the basis of 1000 people is in Yeniimaret neighbourhood. Secondly, the Umurbey neighbourhood comes to the fore. Except for the Menzilahır district, most of the land in other districts is agricultural land.

Table 11. Green area of 5 districts

District Name	PCS	m <sup>2</sup>	Population	District area (km <sup>2</sup> )	m <sup>2</sup> /1000people	m <sup>2</sup> /km <sup>2</sup>	Note
Umurbey	1	285	2,456	7.80	116.04	36.52	Contains agricultural area
Çavuşbey	2	240	4,363	0.68	55.01	351.16	
Yeniimaret	5	720	3,863	15.21	186.38	47.34	
Yıldırım Beyazıt	4	550	6,641	33.16	82.82	16.59	
Menzilahır	1	140	2,869	0.15	48.80	953.90	
Average					97.81	281.10	

## MOBILITY

There is a bicycle path and bicycle sharing system in Edirne province (Urban and Health Book, 2018, s.160).<sup>19</sup>

## SOCIO-ECONOMIC DEVELOPMENT

Edirne, which is a moderately developed province in terms of economy, is above Turkey's average in terms of socio-economic indicators. This situation can be clearly observed in the socioeconomic development classifications made on different dates.<sup>20</sup> In the 2011 Socio-Economic Development Ranking (SEGE) study, Edirne ranks 12th among the provinces of Turkey (Ministry of Development, 2013, p.68).

Population movements in Edirne, which has continuously received and migrated since the establishment of the Republic of Turkey, deeply affected the socio-cultural environment of the province. Even though the migrations from the Balkans supported the well-educated working population in Edirne, this positive advantage could not be taken advantage of as this migration was go to other provinces. Nevertheless, the phenomenon of migration has had a positive impact on the developed culture of urban life that dominates the city. The Roma people living in Edirne, the city with the highest Roma population, are generally musicians, coachman, scrap, market, rice worker,



concrete pourer, porter, car, frog and slug in construction, paper collecting, painting, bagel, daily labor and tin making and basketry. earns from low-income jobs.

### ENERGY PRICES IN TURKEY

Energy cost is a variable which particularly affects our target population. Most face difficulties in paying energy bills and keeping good comfort in their homes.

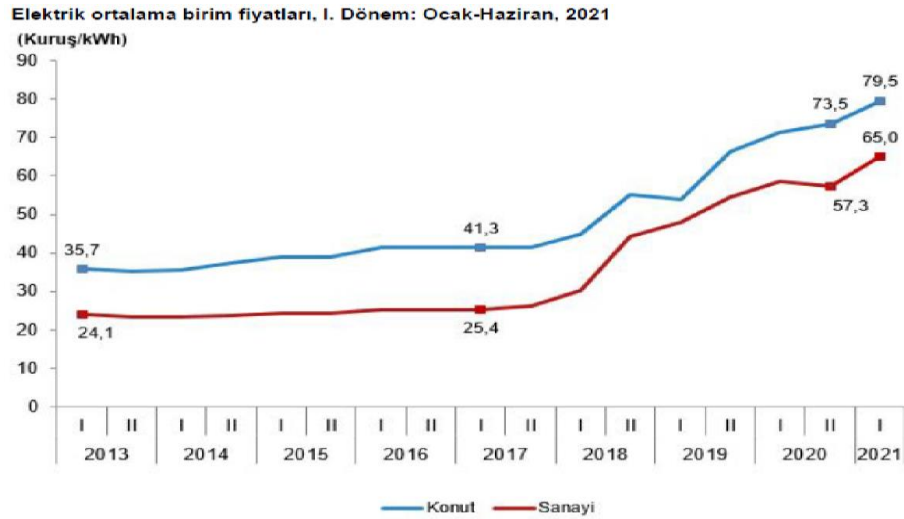


Figure 9. Electricity Prices in Turkey

(Electricity Prices: Blue: Household, Red: Industry; Unit: Turkish Lira Cent per kWh)

While the average unit natural gas price of household in Turkey was 79.5 kr/m<sup>3</sup> in 2021; It was 73.5 kr/m<sup>3</sup> in 2020. In 2021, natural gas prices increased by 8.2% compared to the previous year. The average electricity consumption of Turkey in 2019 was 257,272.931 GWh. Compared to 2018, electricity consumption decreased by 0.4%. When compared to 2017, it is reported that there is a 3% increase (Republic of Turkey Ministry of Energy and Natural Resources, Energy Balance Data).

<sup>19</sup> <https://www.skb.gov.tr/wp-content/uploads/2019/03/Kent-ve-Saglik-Kitabi.pdf>

<sup>20</sup> Izmen, U. 2016. "Regional Development Dynamics: Strategies for Edirne to Exit the Medieval Income Trap and 2023 Scenarios", Trakya Development Agency, p.17. <https://www.trakyaka.org.tr/upload/Node/33061/xfiles/922016C53ms2.pdf>

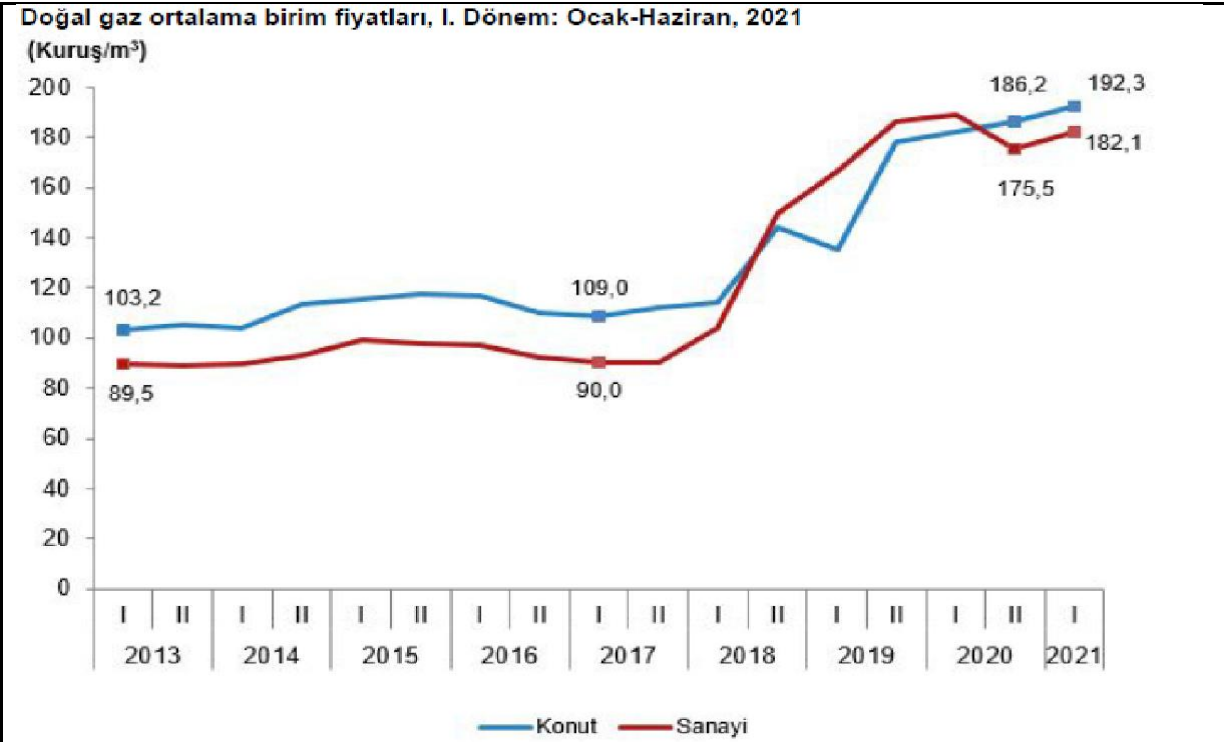


Figure 10. Natural gas prices in Turkey

(Natural Gas Prices: Blue: Household, Red: Industry; Unit: Turkish Lira Cent per m<sup>3</sup>)

While the average unit natural gas price in Turkey was 192.3 kr/m<sup>3</sup> in 2021; It is 186.2 kr/m<sup>3</sup> in 2020. In 2021, natural gas prices increased by 3.2% compared to the previous year. Energy prices depend on petroleum price and USD-TL exchange rates. Natural gas and petroleum are imported. Natural gas and coal are used as a source of electricity production. Value of Turkish Lira depreciated dramatically. Therefore, energy prices increased for households.

## CULTURAL CONDITIONS

Edirne also has a rich culture due to its location connecting Anatolia to Europe. There are 612 historical artifacts reflecting the Ottoman Turkish culture throughout the province. Some of these works (which are Selimiye Mosque, Üç Şerefeli Mosque, Caravanserai, Meriç Bridge, Eski Mosque, etc.) are still intact and are still in use. A similar historical building is also being restored. In addition, there are 29 protected areas throughout the province.<sup>21</sup>

In addition, the Romacted project is being carried out in Edirne. Romacted is a joint program run by the European Union and the Council of Europe with the aim of empowering Roma at local level and promoting good governance. This program is planned to be implemented by the Support Team of the Special Representative of the Secretary General responsible for Roma issues in the Council of Europe and the Office of the General Directorate of

<sup>21</sup> <https://www.edirne.bel.tr/s/genel-bilgi-8.html>

Programs in Albania, Bosnia and Herzegovina, Montenegro, Kosovo Macedonia, Serbia and Turkey for a period of 36 months from May 2017. The main aims of the program are as follows:

- To create political will at the level of local governments and to ensure the adoption of long-term policies for the development of democratic local governance. To build and strengthen the capacity of local Roma communities to contribute to the design, implementation and monitoring of plans and projects related to them.
- Empowering the Roma community, both at the individual level (helping people to realize their fundamental rights and develop their capacity and skills) and at the community level (assisting people to organize to defend their rights to solve problems as a community).
- Developing and expanding the commitment, capacity, knowledge and skills of institutions to work on the participation of Roma, realizing the concepts of good governance.

Activities are designed to increase the participation of Roma citizens in the design, implementation and monitoring of these policies and projects, while helping local governments to integrate Roma-specific dimensions/measures into key local policies, budgets and public services on their agendas.<sup>22</sup>

#### **2.4.2. Target population data analysis and conclusions**

The main target group of the implementation in Edirne is the low-income households in the Menzilahır, Çavuşbey, Yeni İmarat and Yıldırım Hacı Sarraf neighbourhoods, where vulnerable groups, including the older adults and Roma, are highly represented.

##### **a. Needs and Assets of the target population**

While there is no micro-statistical data for the people living in the target populations, focus group discussions and qualitative data collected during previous projects reveal that families, which try to cope with energy, are also poor and/or materially deprived. Majority live in substandard houses with leaking roofs (in some instances with no roofs.), no window sills and holes in the walls. Moulding is a common problem. Many do not have hot water in their houses. If need be, they heat the water on a stove. Furthermore, approximately 10% of the houses in the three project neighbourhoods (out of five) do not have an indoor toilet or kitchen or in door water system. The households share an exterior toilet with their neighbours. As some do not have

<sup>22</sup> <http://www.yereldiplomasi.gov.tr/romacted-projesi/>

a water system, they carry water from a shared pipe in the yard and cook on a gas cylinder. Cohabitation of nuclear families is a common way of coping with material deprivation.

Many do not have regular jobs, hence income. To make ends meet, many engage in daily jobs such as scrap collecting and depend on social assistance, which is limited. Meeting basic needs is a problem. As they earn daily, they spend what they have daily. Purchase of a single diaper, 200 gr. of rice or 1 spoon of oil paste is a common practice to meet the day's alimentation needs. Neighbourhood markets open credit for those that cannot pay. This translates into mounting debt.

Health conditions of the target population are below average. Chronic diseases set in early due to malnutrition starting from womb and substandard housing. Bronchitis and chronic cough are common among babies and toddlers. At mid 20s both young women and men start to deal with chronic diseases such as diabetes and high blood pressure.

While the education level is low among the target group, school dropout rate is low. Early marriages are common practice. Old people tend to live with their married children. Substance use is also prevalent.

On the other hand, solidarity among the target group is high. There is a strong sense of community and neighbourhood among the community. This acts as a coping mechanism with material deprivation and social exclusion.

#### **b. Causes for Energy Poverty in the pilot area and effects on health. Why our target population ends up with Energy Poverty?**

Energy poverty mostly affects low-income households, unable to keep comfort conditions at their homes as they can't afford their basic energy needs. Their economic disadvantage often coincides with poor energy efficiency in their homes (bad insulation, poor quality fuel, outdated heating/cooling systems). Rising energy prices, together with the recent financial and economic crisis aggravates the problem, abounding on social and economic inequalities. Energy poverty is widespread affecting vulnerable groups of society such as low-income households including the older and Roma people in Turkey. If Energy Poverty is taken as failure to meet energy needs because of low household income, high energy prices and substandard housing lacking energy efficiency then, vulnerable and poor groups including Roma are considered energy poor.

The pathway or process that explains how people end up with Energy Poverty in all pilots can be summarised at the figure below. It also shows the effects of Energy Poverty in mental and physical health of people, some of them measured during the project for the research evaluation. The orange-coloured boxes are the areas where this specific WUP will intervene through its different actions, minimising needs

and maximising assets of these fields. Please note that the outline of some boxes has also been coloured based on its corresponding layer in the social ecological model (see figure legend). Green boxes contain the measurements that all pilots will take during the project for evaluation purposes.

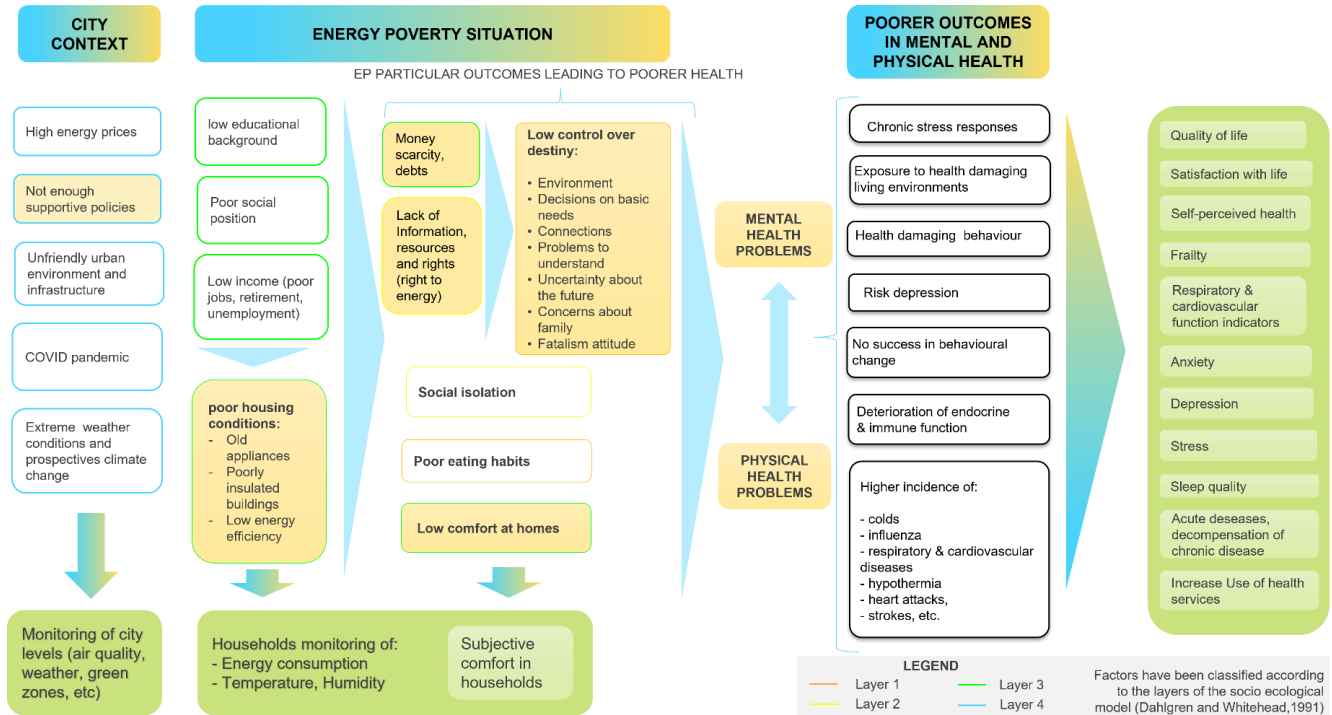


Figure 11. Edirne pilot's pathway of Energy poverty causes and effects in health.

## 2.5. Objectives of the WUP

### 2.5.1. Objective of the WUP

The Edirne WUP aims at reducing fuel poverty and its impacts on health and welfare in some vulnerable neighbourhoods, through actions across different levels.

The actions will take place in the neighbourhoods of Çavuşbey, Menzilahır, Yeniimaret, Yıldırım and Umurbey. It will target low-income households susceptible to be in Energy Poverty. The two main inclusion criteria are (1) having arrears on bills and (2) not being able to keep comfort conditions at home. Another inclusion criterion is (3) living in houses, which needs repair.

Participants will be assessed about how to improve their home conditions and health (through home visits, installation of efficiency kits and heating systems and health parameters measurements). Participants will be advised for optimization of their bills and solving of debt problems. Sensors to monitor comfort conditions

(temperature, humidity) will be installed at homes. Energy consumptions will be recorded by using electricity and fuel bills.

### 2.5.2. Tomorrow's newspaper

To help envisioning the impact of the WUP, here below is an imaginary news in a fictitious newspaper talking about our project results in five years from now.

## Neighbourhoods where mostly Roma live in Edirne are now breathing!

January 2027



*Wellbased, one of the H2020 projects, aims to create evidence-based policy to improve Energy Poverty and quality of life. Thanks to the project, homes of the people living in Roma neighbourhoods and faced with Energy Poverty were renovated and their quality of life and standard of living improved. Roma people also continue to receive training every year in order to increase their living standards with the support of Edirne Municipality and Zero Discrimination Association. The number of people living in*

*unhealthy conditions is gradually decreasing. At the end of the project, those in the intervention group living in the Roman neighbourhoods and included in the Wellbased project started to live in healthier conditions with home improvements, necessary information and guidance. Ms. Gülnur, who lives in Çavuşbey neighbourhoods, expressed her opinion by saying that "with the improvements made in the house, our houses are warmer during winter. We can take warm showers thanks to the heating systems." Gone are the days without energy in the Wellbased pilot project neighbourhoods, with home improvements and awareness raising. Within the scope of the project, clean energy can also be used with the system that uses solar energy. The locals hope that such projects would become more*

*widespread. In addition, the health measurements that started with the project made it easier to reach more detailed information about the health status of the neighbourhoods. With the health devices provided by the project, improvements in public health in neighbourhoods with low quality of life continue after the project with the support of Edirne Municipality.*

## 2.6. Overview of Actions

The following actions will be performed during the pilot project (detailed in 2.8.):

Table 12: List of WUP main actions

LIST OF WUP MAIN ACTIONS	
<b>Layer 1: Individual Lifestyle factors</b>	
1.	Socio-energy audits
<b>Layer 2: Social and Community networks</b>	
2.	Training professionals on the detection of Energy Poverty
<b>Layer 3: Living and working conditions</b>	
3.	Building improvements
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>	
4.	Policy recommendations to the governance on Energy Poverty



## 2.7. Impact indicators

### 2.7.1. General impact indicators

The table below shows information about how the pilot will collect the general impact indicators established for the project.

Table 13: General Impact Indicators

Variable	Instrument/indicator	Data Source	Data collection
Sociodemographic details: age, sex, gender, occupation, etc.	Ad-hoc questionnaire	Online* questionnaire for data collection	<input type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ...
Health and wellbeing measures			
Quality of Life	Quality of Life (HRQoL)	Online version of the clinical standardised questionnaires	<input type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ...
Satisfaction with life	Satisfaction with Life Scale (SWL)		
Mental health: Depression	Depression and Anxiety Stress Scales (DASS/BSI)		
Mental health: Anxiety			
Mental health: Stress			
Self-perceived health	SF-12 Health Survey (SF12)		
Frailty	Self Perceived Multidimensional Impairment Index (SELFY-MPI)	Online version of the clinical standardised questionnaire	
Subjective comfort in households	Self-reported scale <sup>23</sup>		
Respiratory & cardiovascular function indicators	Peak flow measurement	IoT Home health control devices, real time monitoring	<input checked="" type="checkbox"/> Manual collection  a) <input checked="" type="checkbox"/> Directly by participants b) <input type="checkbox"/> By another stakeholder  <input checked="" type="checkbox"/> Collection through wearables devices
	SpO2 measurement		
	Blood pressure measurement		
	Sleep quality measurement		

<sup>23</sup> Frontczak, M., Andersen, R. V., & Wargocki, P. (2012).

			<input type="checkbox"/> Other: .....
Incidence of the acute diseases	Number of Diagnosed acute diseases	Electronic Health Records direct extraction and/or online questionnaire	<input checked="" type="checkbox"/> Direct extraction  <input type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: .....
Decompensation of chronic disease	Number of diagnosed exacerbations, all health settings (Emergencies, acute units, hospitalisation, primary care)		
Readmissions	Admissions in the ED (emergency department), acute units or regular hospitalisation		
Use of primary attention services	Visits to the primary attention services distinct from those aimed at renewing the prescriptions		
Life experienced	Impressions, comments, experience and subjective perceptions captured in focus groups and interviews & codified	Qualitative analysis codified records	Partner responsible (UNIVLEEDS) will provide the methodology and keep the data collected
<b>Energy efficiency evaluation</b>			
Energy consumption	Yearly Kw/day	Energy providers (DSOs) App	Detail how you will collect energy consumption (if you don't know yet, write "definition in progress")
Household income spent on energy	% of income/Euros	Online questionnaires	<input type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: .....
Household conditions: temperature	Celsius Degree	IoT DT home sensors, real time monitoring	Definition in progress. To be detailed in D3.1
Household conditions: humidity	% Relative humidity		
Household conditions: air quality	CO2 and CO concentration		

City pollution	CO1, CH4, N2O, PM	SmartCity Open platforms (city-level/local data) Secondary sources (city reports, etc.)	Available open data web (Open data platform prepared by the Ministry of Environment, Urbanization and Climate Change in Turkey)
City air quality	CO1, CH4, N2O, PM, soot & smoke (wildfires, urban fire), specific gases, dust, etc.		
City weather	Rain rays per year, Floods reported per year, Extreme heat days (>30°C) per year, Days below >5°C per year, Average temperatures, per season		
City climate	Comparison between these measures and the 10-previous-year reports and the 25-previous-year reports		
City green spaces	Green spaces (m2) per km2 Existence, localisation and length of <i>urban heat islands</i> Trees and parks or any other green space (m2) in <i>urban heat islands</i> (km2), if any		

### 2.7.2. Pilot Specific indicators

The following indicators will be specifically collected for our pilot.

Table 14: Pilot Specific Indicators

PILOT SPECIFIC INDICATORS		
DESCRIPTION	KPI	DATA SOURCE
<b>Participants' recruitment</b>		
Intervention group	number for intervention group participants: 125 socio-demographic distribution (%): %50 women and %50 men	Field study report
Control group	number for intervention group participants: 125 socio-demographic distribution (%): %50 women and %50 men	Field study report

Community participation	min. 2	Field study report
Political and decision maker participation	min. 1	Field study report
<b>Layer 1: Individual Lifestyle factors</b>		
Efficiency kits delivered	1 kit/participant	Project report
Efficiency kits installed at home	50%	Project report
Health parameters measurements	1 /participant/month	Project report
Trainings and conferences about energy efficiency	min. 2	Project report
Participation in the peer network between neighbourhoods to promote the project	min. 1	Project report
<b>Layer 2: Social and Community networks</b>		
Regular informal meetings	Min 4 (1/month)	
Trainings on EP detection to professionals	Min 2	
Feedback and information requests from the public about the project to the municipality	4 of request/month	Project report
<b>Layer 3: Living and working conditions</b>		
Trainings on employment opportunities	Number of activities and participant: min. 10	Project report
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>		
Organizing internal meetings for policy proposal on Energy Poverty	Min. 4	

## 2.8. WUP Detailed planification

Table 15: List of Actions

ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 1.</b> Socio-energy audits	
Description	
<p>Selected homes will be visited for energy audit:</p> <ul style="list-style-type: none"> <li>• What kind of fuels are used and annual fuel and electricity consumption will be listed by interview</li> <li>• Leakage points for air and water on doors, windows and roofs; Insulation requirement electrical devices (number off lamps) will be listed.</li> <li>• Strength of roof for solar will be energy evaluated. If not, alternative location will be checked. Heating requirement and material list will be prepared.</li> <li>• Locations for measurement (Temperature and humidity) devices will be selected.</li> </ul> <p><b>When?</b></p> <p>We will get consent for interventions (Home Improvement Approval Form) from households selected. Then visiting dates will be decided with home owners.</p> <p><b>Where?</b></p> <p>Home visit is main part for interventions. Paperwork will be done at office in Municipality of Edirne</p> <p><b>How?</b></p> <p>Face to face meeting will be done mainly at home. Home conditions, living styles will be observed. Questionnaires will be filled for taking photo of starting point.</p>	
Outcomes of the action	
<ul style="list-style-type: none"> <li>• Less Illness result of mishearing/low temperature, result of thermal shock, illness result of high humidity.</li> <li>• Also reduced fuel and electricity bills</li> </ul>	

<ul style="list-style-type: none"> <li>• People will have energy efficient lifestyle.</li> <li>• To have deep knowledge on participants' profiles regarding energy use and socio-health particularities.</li> <li>• To provide with baseline information, helpful for deciding next steps and designing a customized intervention plan to cover participant's actual necessities.</li> </ul>	
<b>Stakeholders involved</b>	<b>Period it covers</b> (develop it on the next chart)
Municipality of Edirne and Chamber of Mechanical Engineer - Edirne Branch	January 2022 – August 2023
<b>Budget and resources</b> <b>(from Wellbased project or from other sources)</b>	
Budgeted for heating devices (sun and fuel boiler, radiators, piping, cabling, led lamp, etc) is €45,000 from project budget. Insulations and energy efficiency work budget is from Municipality of Edirne.	

<b>ACTIONS OF YOUR WUP</b>
<b>Title (and number) of the action</b>
<b>ACTION 2.</b> Training professionals on the detection of Energy Poverty
<b>Description</b>
It is aimed to train the people who will carry out the measurements and follow-up related to the health measurements to be carried out in the intervention group. Accurate measurement ensures more accurate recording of results.
<b>Outcomes of the action</b>

<ul style="list-style-type: none"> <li>• Making accurate measurements from health devices</li> <li>• Informing the participants in the intervention group correctly for the follow-up of the health parameters to be made</li> </ul>	
<b>Stakeholders involved</b>	<b>Period it covers</b> (develop it on the next chart)
Edirne Municipality, Zero Discrimination Association and Demir Enerji	March 2022-September 2023
<b>Budget and resources</b> (from Wellbased project or from other sources)	
TBD	

<b>ACTIONS OF YOUR WUP</b>
<b>Title (and number) of the action</b>
<b>ACTION 3.</b> Building improvements
<b>Description</b>
Implementation of solutions to strengthen the insulation on the exterior facades of the participants in the intervention group in order to reduce Energy Poverty in their homes. It is planned to make different applications in a few houses for trial purposes.
<b>Outcomes of the action</b>
<ul style="list-style-type: none"> <li>• Reducing the number of people living in an unhealthy home environment in cold climatic conditions</li> <li>• Reducing Energy Poverty</li> <li>• Ensuring the protection and/or improvement of public health</li> </ul>

Stakeholders involved	Period it covers (develop it on the next chart)
Edirne Municipality, Roma Youth Association Turkey, Edirne Yıldırım and Solidarity Association, Thrace Roma Education Research and Culture Development Association	August 2022-September 2023
<b>Budget and resources</b> <b>(from Wellbased project or from other sources)</b>	
The budget to be used for building improvements will be included in the €45,000 specified in the “socio-energy audits” action budget.	

ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 4.</b> Policy recommendations to the governance on Energy Poverty	
Description	
<ul style="list-style-type: none"> <li>Identifying local strategies to combat Energy Poverty</li> <li>Focus group meeting with relevant stakeholders on Energy Poverty in Edirne (NGOs etc.)</li> <li>Discussing and deciding on policies to reduce Energy Poverty in Edirne</li> <li>Communicating policy recommendations for Energy Poverty reduction to policy makers</li> </ul>	
Outcomes of the action	
<ul style="list-style-type: none"> <li>Determining the path to be followed to reduce Energy Poverty</li> <li>Suggestions developed to reduce site-specific Energy Poverty with project analyzes</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)



Edirne Municipality, Edirne Medical Chamber	October 2023-March 2024
<b>Budget and resources</b> <b>(from Wellbased project or from other sources)</b>	
TBD	

Table 16. Timeline of WUP (Edime)

	Jan. 2022	Feb. 2022	Mar. 2022	Apr. 2022	May. 2022	Jun. 2022	Jul. 2022	Aug. 2022	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	May. 2023	Jun. 2023	Jul. 2023	Aug. 2023	Sep. 2023
<b>Layer 1 - Individual festyle factors</b>																					
ACTION 1. Socio- Energy Audits																					
1.1. 25 houses will be inspected and selected for intervention																					
1.2. Renovation (Efficiency Improvement) and Heating system projects for the 25 houses will be prepared																					
1.3. Approvals of the drafted projects will be finalised																					



	Aug. 2022	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	May. 2023	Jun. 2023	Jul. 2023	Aug. 2023	Sep. 2023	Oct. 2023	Nov. 2023	Dec. 2023	Jan. 2024	Feb. 2024	Mar. 2024
<b>Layer 3 - Living and working conditions</b>																				
ACTION 3. Building improvements																				
3.1. Receiving measuring devices																				
3.2. Data collection																				
<b>Layer 4 - General socio-economic, cultural and environmental conditions</b>																				
ACTION 4. Policy recommendations to the governance on Energy Poverty																				



## Chapter 3: Heerlen (NL)

### 3.1. Overview of the WUP (Heerlen, NL)



URBAN PROGRAM

PILOTSITE  
**HEERLEN**  
(Netherlands)

#### PERIOD

Pilot activities: 12 months  
(AUG 2022/JAN 2023 to JUL 2023/DEC 2023)<sup>1</sup>  
+ follow-up audit 6 months after the  
end of the project activities

#### RESPONSIBLE AUTHORITY

Municipality of Heerlen (HEERLEN)

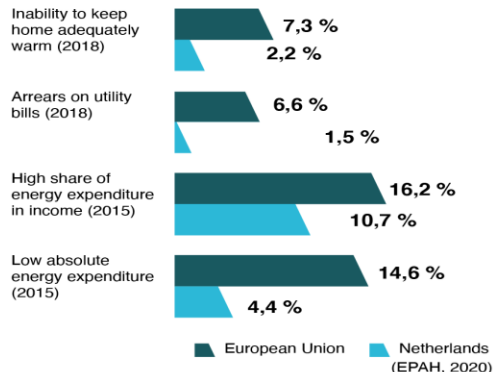
#### OTHER KEY STAKEHOLDERS

**GGD Zuid Limburg (Public Health care centre):** health research and advise  
**Social corporation Heerlen Stand-BY!:** social counselling and support in the communities  
**Woonwijzer winkel (shop for sustainable living):** advisory service for sustainable living  
**Woningcorporatie (social housing corporations):** houses renovations and improvements  
**Line Connect (Collaboration between Province of Limburg, Hoge School Zuyd and Maastricht University):** collecting data, impact measurement and tools

#### THEMATIC SCOPE

##### NETHERLANDS: ENERGY POVERTY COUNTRY DATA

###### Performance relative to EU average



##### HEERLEN: SOCIAL CONTEXT OF THE CITY

- Total population: 86.815 (2021)
- Relatively old population: 23% are 65 years or older (national average: 19%)
- In the last decade, the population of Heerlen has decreased by 2.4%
- 10,7 % of the population has a non-western background (national average: 13.7%)
- High poverty levels: 14% of the households living below the minimum income level (national average: 8%)
- 39% have a lower education level (national average: 30%)
- Mines closure led to social economic deterioration of the city

###### Energy poverty and housing local conditions

- 18.6 % of Heerlen population struggles to pay their bills (national average: 14.9 %)
- 14% of EP in Heerlen (national average: 6%)
- In the districts of intervention EP levels higher than in other neighbourhoods



##### NATIONAL CURRENT POLICY TO TACKLE ENERGY POVERTY

- National Definition of EP
- Energy savings covenant rental sector (2008)
- Incentive scheme to improve energy performance of social housing (2014)
- Disconnection protection households (2018)
- Energy bank (2015)
- Energy box (2014)
- Electricity tax reduction for basic needs (2011)
- Guide on energy subsidies
- Energy toolbox

(EPAH, 2020)



##### INTEGRATION IN MUNICIPAL ACTION PLANS AND OTHER LOCAL PROJECTS

- Programme Heerlen Noord (start in 2022)
- Citizen Participation programme
- Social service department (including social payment, dept support, energy grants etc)
- Sustainable programme: natural gas free neighbourhoods, transition vision health, insulation programme.
- Collaborative policy measures in the area of Parkstad on EP, social and sustainable energy
- Policy measures, grants and subsidy on a national level managed from the municipality
- Local participation initiatives Buurtactie/ buurtdeal



<sup>1</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)

### TARGET POPULATION

#### INTERVENTION AREA

Heerlen Noord district of Heerlen, with focus on the specific areas of Vrieheide de Stack, Beukstraat Heerlerheide Meezenbroek/ Schaesbergerveld (to be confirmed)

#### TOTAL POPULATION

(Heerlen Noord) over 50,000 (2021)

#### VULNERABLE POPULATION

People who live in social housing (low-income families, unemployed, single parents, etc.)

#### NUMBER OF WUP PARTICIPANTS

156 for intervention group (+ 156 for control group)

### MAIN EP SOCIAL DETERMINANTS OF HEALTH IN WUP TARGET POPULATION<sup>2</sup>

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#### CITY INFRASTRUCTURE

- ☺ High number of sport clubs, playgrounds...
- ☹ Area physically deteriorated since the closure of mines

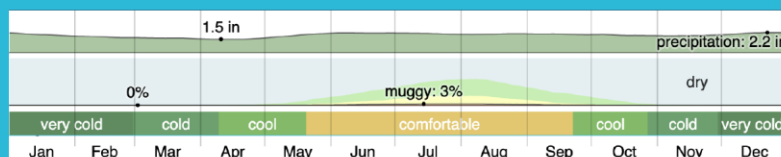
- ☺ Urban renewal programmes in the Heerlen Noord
- ☺ Successful social intervention programme "Hartslag"

#### WEATHER AND AIR CONDITIONS

- ☹ Long, windy and relatively cold winters
- ☺ Comfortable summers (rarely above 30°C)

#### MUNICIPALITY COMMITMENT

- ☺ Local government committed to sustainability, EP and citizen participation



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#### WORKING CONDITIONS

- ☹ Low income level than national average

#### HOUSING CONDITION

- ☹ Old housing and some in poor conditions
- ☹ Higher values of EP than in other neighbourhoods
- ☹ Dependence of the social housing corporation

#### EDUCATION

- ☹ Lower education than national average
- ☹ Lower school performance than national average

#### HEALTH EQUIPMENT

- ☹ Higher healthcare cost than national average

#### OTHER LIVING CONDITIONS

- ☹ Lower feeling of safety than national average (drugs, crime, prostitution and homelessness, partly by recent intervention programmes)

#### COMMUNITY NETWORKING

- ☺ Strong community trust and social networks support
- ☺ Cultural and artistic neighbourhood identity recently born
- ☺ Local neighbourhood organisation promoted by the municipality (for citizen wellbeing, keeping the neighbourhood green...)
- ☺ Higher citizen participation in Heerlen Noord than in other districts

#### UNHEALTHY / HEALTHY LIFESTYLES AND HABITS

- ☹ Less life expectancy (6 years) than the rest of the country
- ☹ Higher rates of smokers than national average
- ☹ Higher risk of anxiety and depression than national average
- ☹ Higher incidence of chronic diseases and overweight than national average
- ☹ Less sport habits than national average
- ☺ 74,4% experience their health as positive

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- Aged population
- Multi ethnic background, amongst which 3rd generation of guest workers (Turkish and Moroccan)



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### OBJECTIVE

- To achieve lower energy costs
- To achieve more comfortable and healthier homes (higher energy label)
- To improve overall well-being / health
- To reach more pleasant living environment
- To promote sustainable and local energy (stimulate local energy markets)
- To improve sharing knowledge and information on energy poverty/ energy savings



### ACTIONS & PILOT-SPECIFIC RESULT INDICATORS

#### PILOT-SPECIFIC RESULT INDICATORS

#### LAYER 1 · Individual Lifestyle factors

- Energy efficiency trainings
- (Energy) debt support

Min 4 energy efficiency trainings  
Provide (energy) dept advice in at least 60% of the cases

#### LAYER 2 · Social and Community networks

- Training professionals on Energy Poverty and what to do?
- Open talks/ community meetings about energy issues in the local community including (energy)advice

Min. 4 trainings on EP detection to professionals  
Min. 4 open talks about energy issues in Heerlen Noord

#### LAYER 3 · Living and working conditions

- Energy boxes installation/ advice
- Collaboration with local housing corporation who provide (bigger impact) energy effective measures
- Home audits

Provide 1 energy box to min 50% of the participating households and install them  
Collaborate in the project with at least 2 social housing corporations within the area  
2 environmental home audits per participating suburb of Heerlen Noord

#### LAYER 4 · General socio-economic, cultural and environmental conditions

- Policy advocacy plan (Parkstad level)
- Raising awareness in local neighbourhood newspapers
- Local stakeholder network collaboration to promote actions that fight energy poverty on different levels

Min. 2 different protocols/ intervention plans  
Publish in minimum 3 local neighbourhood newspapers/ websites  
Min 3 meetings with local stakeholders in the neighbourhood to provide different actions

### WUP INTERVENTION IN MAIN EP SOCIAL DETERMINANTS OF HEALTH<sup>3</sup>

LAYER 0	LAYER 1	LAYER 2	LAYER 3	LAYER 4
Due to the sociodemographic characteristics of the target population and/or the WUP focus, a special impact is expected on:	HEALTHY LIFESTYLES AND HABITS	ASSOCIATIVE NETWORK	UNEMPLOYMENT LEVEL	ENVIRONMENTAL AND WEATHER CONDITIONS
AGED POPULATION	ENERGY EFFICIENCY HABITS	KEY COMMUNITY ACTORS AND PROFESSIONALS	FINANCIAL SITUATION, INCLUDING DEBTS	CITY INFRASTRUCTURE (GREEN ZONES, BIKELANES...)
LARGE FAMILIES	MENTAL HEALTH AND ATTITUDE	UNWANTED LONELINESS/ SOCIAL ISOLATION	STRUCTURAL HOUSING CONDITIONS (INSULATION...)	SUPPORTIVE POLICIES AGAINST EP
SINGLE PARENTS			ENERGY EFFICIENCY MEASURES AT HOME	GENERAL PUBLIC AWARENESS
FAMILIES WITH NO CHILDREN			FORMAL EDUCATION LEVEL	ENERGY PRICES
ETHNIC MINORITIES			HEALTH CITY EQUIPMENT	





## 3.2. Identification of the WUP

- **Title**

Wellbased Urban Programme fighting Energy Poverty in the City of Heerlen

- **Period it covers**

Pilot activities: 12 months (from August 2022/Jan. 2023 to July 2023/Dec. 2023)<sup>24</sup>

+ follow-up audit 6 months after the end of the project activities

- **Responsible authority**

Municipality of Heerlen is responsible for the implementation of the project, working together with its local partners.

- **Stakeholders and their responsibilities**

- The municipality of Heerlen is responsible for the WUP in Heerlen and implementation of the projects. Coordination and overall monitoring will be carried out by the project leader and the team in Heerlen.
- Key players in the Heerlen project are:
  - GGD Zuid Limburg (Public Health care centre) When talking about public health, the GGD is the main player in the region. Linking (public) health issues and sustainability as well as research and advise are the most important in this collaboration.
  - Social corporation Heerlen Stand-BY! They carry out the social counselling and support in the communities including tackling poverty and raising awareness. The social workers and community workers are also part of this organisation.
  - Woonwijzer winkel (shop for sustainable living) This partner provides a knowledge and advisory service in the field of making houses more sustainable. Moreover, it is a shop where customers can find, feel and see technical measures for themselves and get professional advice for the best options.
  - Woningcorporatie (social housing corporations) A lot of property in Heerlen is owned by (social) housing corporations. There are 8 corporations in Heerlen, the

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<sup>24</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)



main ones we collaborate with during this project. Also their goal is to improve the living conditions and renovate the houses, many citizens depend on them.

- Gemeente Heerlen. As a municipality we strive for an integrated approach by linking knowledge and projects so our citizens can benefit most.
- Lime Connect: partner in collecting data, impact measurement and tools. Collaboration between Province of Limburg, Hoge School Zuyd and Maastricht University.

### 3.3. Thematic scope of the WUP

#### 3.3.1. Social context of the city:

Heerlen is located in the southeast of the Netherlands, borders the German city of Aachen and is part of the city-region of Parkstad Limburg, an agglomeration with about 250 000 inhabitants and encompassing 7 municipalities.

In the last decade, the population of Heerlen itself had decreased by 2.4% from 89 236 in 2010 to 87 087 in 2020. Heerlen has a relatively older population. In 2020, 23% of the inhabitants were 65 years old or above (19% at national level) and 13% were younger than 15 (16% at national level) (see figures 12 and 13).

Poverty levels are high with 14% of the households living below the minimum income level as set in the Netherlands (8% at national level). Moreover, 39% have a lower education level (30% at national level).

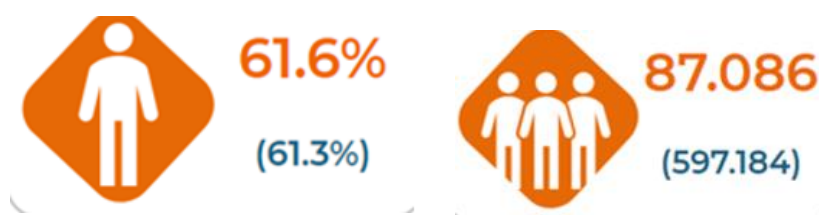


Figure 12. Percentage of inhabitants between 18 and 64 years old

Figure 13. Number of inhabitants in Heerlen > 18

Migration level: In Heerlen 10,7 % of the population has a non-western background compared to 13.7% in the Netherlands.

However, Heerlen has a few suburbs where the number of people with a migration background is present, represented by foreign colourful shops and the mosque. Heerlen was a mining city until the 1970, in those

days employment rates where high. In many suburbs of Heerlen the 3th generation guest workers are residents in the neighbourhood.

Also, the number of Illiterate inhabitants is high, and the education level is divided into:

- Low level: 24.050 inhabitants
- Average: 28.108 inhabitants
- High: 14.380 inhabitants (*source CBS, 2020*)

Drugs and crime are also a vulnerability in the area of Heerlen and specially in Heerlen Noord. Before the year 2001 Heerlen was in the top 3 of the main Dutch drugs and crime cities. Prostitution, homeless, drugs and crime dominated the streets of Heerlen. A major impact intervention programme called operation “Hartslag” followed to tackle these problems. This program was highly recognised on a national level because of a strong combination of the intense repressive and (health)care approach. A multidisciplinary approach formed by counsellors, police, department of justice, shelter cares, policy makers made it successful.

Today the fear from the past is still present, for Heerlen Noord district and the city centre drugs and crime are still topics on the policy agenda. The city is working hard on its (new) image. Although the number of crimes are still higher compared to the surrounding cities. More creativity and cultural activities were brought to the town, therefore in these days Heerlen is known as the cultural and colourful mural capital of the area.

The city is working hard to improve its image also to boost the self-confident of inhabitants who need to feel safe and at home in their neighbourhoods. In Heerlen Noord programme there are challenging goals that need to be achieved to improve the life standard and wellbeing of the people. Fighting Energy Poverty and promoting health will be a strong part of this approach.

### 3.3.2. Energy Poverty data

A national definition of Energy Poverty exists. It sets the limit for households that spend 10% of their monthly income on their energy bill and do not earn more than € 14 000 a year.

National Energy Poverty rate in The Netherlands in 2021 is 6% and for Heerlen it's even 14%. Heerlen is second on the national city ranking (See [TNO report](#) for more details).

Figure 14. shows Heerlen and neighbouring areas, however the dark brown colour identifies areas where the Energy Poverty rate is > 13%.

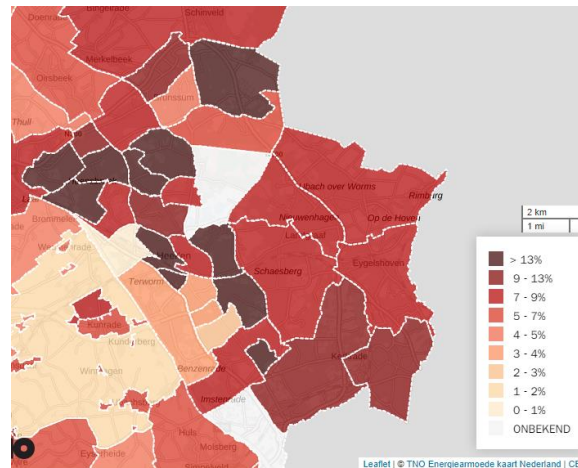


Figure 14. Energy poverty rate in The Netherlands

Source: TNO, 2021<sup>25</sup>

This is the area of Heerlen Noord districts Heerlerheide en Hoensbroek (areas of intervention). Also, in the table below the figures are ranked in percentage and number of households per suburb.

Regarding bills, 18,6% of Heerlen population struggles to pay their bills, compared to the 14,9% national average (see Figure 15).



Figure 15. People in Heerlen struggles to pay their bills and national average

### 3.3.3. Current policy to face Energy Poverty

Various measures are being taken in Heerlen to mitigate the consequences of the energy price increase.

Over the last years the city has implemented several projects to help people make energy savings, including an energy one-stop-shop and visits by an energy team. Because of a national grant, residents can get free vouchers for products and/or advice. As part of the city solar panel project a decision was made to waver a

<sup>25</sup> <https://www.tno.nl/nl/aandachtsgebieden/energietransitie/roadmaps/systeemtransitie/de-sociale-aspecten-van-de-energietransitie/energiearmoede/>



credit verification for people to get a loan from the municipality. The main reason was to give people with lower incomes the possibility to join the project.

Recently the region Parkstad Limburg, started an action for a new regional strategy for a fast intervention pending on the fast rising energy prices. For 2022 there is an extra national grant for quick interventions. The province of Limburg also started extended research, together with TNO to support common solutions to fight Energy Poverty. With the Wellbased project team and its partners we will be part of defining these common solutions.

In Heerlen 3821 households receive payment from the municipality's social service. 100 people get other types of services, and there is a substantial group, including youth, in Heerlen who receives long term disapproved (chronical illness) from the national employment insurance.

Also the social domain from the municipality of Heerlen receives notifications from people stating they are not able to pay their energy bills anymore. Energy poverty needs a multidimensional approach, however a substantial part of Heerlen's inhabitants get their payment from the social service.

General ambition for the municipality is that the energy transition should be inclusive.

On a national level:

- **Energy tax reduction - 3.2 billion**

A household with an average energy consumption will receive more than € 400 (including VAT) discount on energy tax in 2022. On average, a household consumes 1,170 m<sup>3</sup> of gas and 2,384 kWh of electricity annually. This measure applies to all households, regardless of income. The composition of households and the degree of insulation of the house have a lot of influence on this. Therefore, there can be large differences between households.

- **Energy saving products and energy advice - 150 million**

Municipalities receive a budget (Heerlen € 1,831,132) to support households that are dealing with Energy Poverty and are in a vulnerable position – due to the increased energy costs – in the short term in taking energy-saving measures to reduce their energy bills. The Parkstad municipalities, together with the housing corporations and the Woonwijzerwinkel, are currently preparing a plan to help households with low incomes and high energy costs structurally reduce their energy bills in the short term. It includes the following set of instruments: energy coaches who can apply small energy-saving measures for free and can give advice on how to live economically; Offering energy boxes with small energy-saving measures; A subsidy scheme to be able to purchase or replace energy-efficient white goods; Participation in the Parkstad Solar Panel



Project; Home or floor insulation workshops for home contractors; Free energy advice and coaching for homeowners.

It is important for this set of instruments that we can reach the target group. So, a good communication campaign will have to be devised in collaboration with existing organizations and structures that already come to the people behind the front door. The aim is to have the first instruments ready in the first quarter of 2022, starting with communication.

- **One-off energy surcharge low incomes - 200 million**

Households with a low income receive approximately € 200 categorical special assistance as a one-off compensation for rising energy prices. Budget for special assistance distribution key € 1,654,022, for Energy Poverty € 2,457,926. Generic regulation with little policy freedom for municipalities. Welfare recipients receive the amount automatically. Other groups can report to the municipality.

In order to inform this group, public communication is set up together with the VNG and Divosa. No power test. A special assistance allowance is subject to a prohibition on attachment. Probably national income limit. Cabinet VNG and Divosa are working on uniform implementation regarding target group and target amount Frameworks follow. The aim is to start paying out the allowance in the first quarter of 2022.

Heerlen has a prominent political left wing, social benefits and compensation for people with low incomes are well organised, especially for single mothers and other vulnerable groups.

Collaborating with its local partners in a multidisciplinary approach, awareness and sharing knowledge is key. Heerlen is promoting a participative and inclusive approach in its policy.

Furthermore, Heerlen is elaborating its own climate plan with multiple stakeholders.

### **3.3.4. Integration in municipal action plans and other local projects**

Other local projects and programmes in Heerlen that we believe have crucial linkages that we would like to integrate:

- Programme Heerlen Noord (start in 2022)
- Participation programme (including citizen participation)
- Social service department (including social payment, dept programs, energy grants etc)
- Sustainable programming; natural gas free neighbourhoods, transition vision health, isolation programme.



- Policy measures are established in the area of Parkstad, through collaborating program in the city region Parkstad on Energy Poverty and renewable, social and sustainable energy
- Policy measures, grants and subsidy on a national level ([www.rijksoverheid.nl](http://www.rijksoverheid.nl))
- Operation Stone break (<https://steenbreek.nl/>)
- Citizen participation in public space in the local neighbourhoods (“[De buitenkans](#)” and “buurtactie”)
- Collaboration between Municipality of Heerlen and the main social housing corporations  
Annual priorities and goal setting (Prestatie afspraken).
- Local participation initiatives Buurtactie/ buurtdeal

## 3.4. Target population

### 3.4.1. Target population data collection and classification under the socio-ecological model

In this pilot, the target group includes the inhabitants of Heerlen- Noord, in this chapter we explain why we targeted this area.

Heerlen-Noord is an area with major socio-economic challenges that are of unprecedented scale for the Netherlands. The area is in the middle of the Eastern Mining Region. A region that for decades was a symbol of progress, prosperity and development. Until the discovery of Groningen gas, in the fifties of the last century, our province; “Zuid Limburg” supplied the energy of the Netherlands. With the closure of the mines, which followed, a difficult time began for the city. The mining past did not remain visible but can still be felt to this day. The area changed both physically and socially and fell prey to 'demolition and dope'. Compared to Heerlen-Zuid and the rest of the Netherlands, school performance is lower, housing is worse, the feeling of safety is lower, life expectancy is six years less and healthcare costs are higher. It's time to turn the tide. The inhabitants of Heerlen-Noord deserve a new perspective. Wellbased programme can support the 5 mail goals (education, work, health, living, safety) of the Heerlen- Noord programme.

"Heerlen-Noord covers more than two-thirds of the municipal territory, more than 50,000 people live there. The consequences of the mine closure in the seventies of the last century were most felt here, and still are. The socio-economic situation deteriorated, which manifests itself in many areas, such as health and safety"

This is a quotation from the Urban programme Heerlen Noord, one out of 16 urban renewal programme areas in the Netherlands.

Apart from the district, other indicators are: target groups need to rent a home from a social housing corporation, low-income, high-energy bills, low energy measures, bad housing, (at risk for energy) dept.

Collaboration with social housing corporations is crucial because they have their annual planning for renovation, isolation and energy measures. The number of tenants living in Energy Poverty is substantial in Heerlen. When it comes to implement energy saving measures tenants also depend on the social housing corporation. Our goal is to collaborate and prioritise together, the social housing corporations have budgets available for renovations and other energy saving measures that provide real impact.

Complementary measures need to be implemented as well; raising awareness, sharing knowledge, provide energy boxes and energy coaches as well as a strong collaboration with the social domain.

All benefit from a multidiscipline approach.

## TARGET POPULATION OF YOUR WUP

**Our target population** spread out across the Heerlen Noord district of the city. This is the northern part of the city with some specific zones especially vulnerable (dark brown colour) because of a substantial percentage of inhabitants in the neighbourhood have a low-income, high-energy costs, low employment rates, bad houses, high dept rates and social support (Figure16).

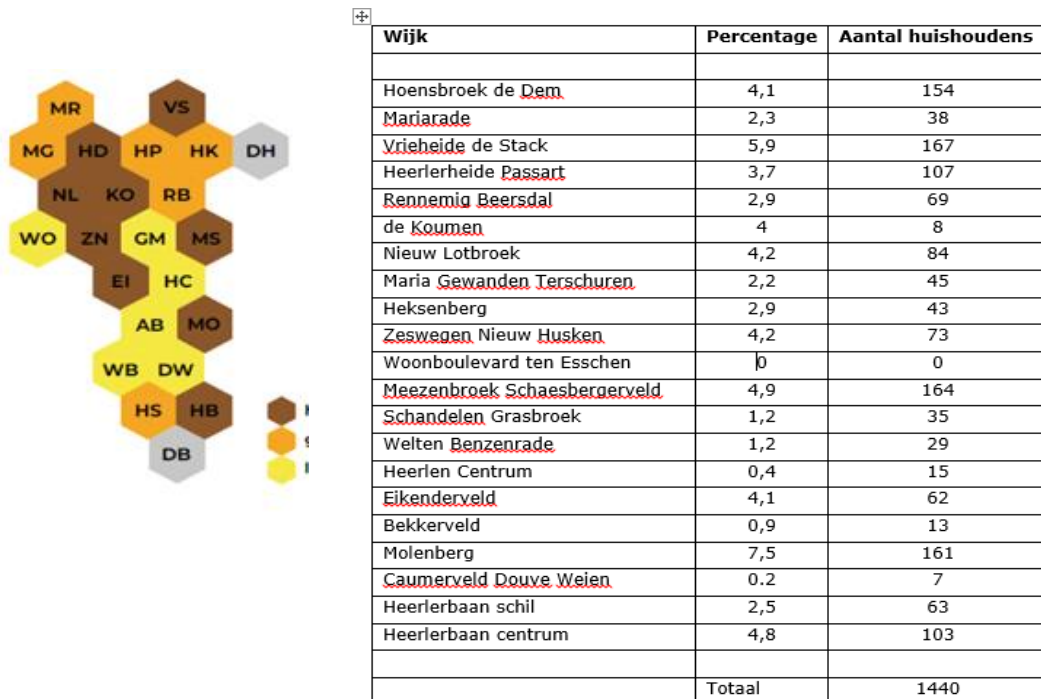


Figure 16. Energy poverty per suburb in Heerlen

Source: CBS, 2020

(Brown colour is high level of Energy Poverty; Orange is average level of Energy Poverty; Yellow is low level of Energy Poverty; The grid shows the percentage and the number of households affected)

The suburbs in the area of Heerlen Noord are:

Hoensbroek de Dem, Mariarade, Vrieheide de Stack, Heerlerheide Passart, Rennemig Beersdal, Nieuw Lotbroek, Maria Gewanden Terschuren, Heksenberg, Zeswegen Nieuw Husken, Meezenbroek schaesbergerveld, Schandelen Grasbroek.

Our main focus in this pilot will be at Heerlerheide en Hoensbroek, specific area's: Vrieheide de Stack, Beukstraat Heerlerheide Meezenbroek/ Schaesbergerveld (still under definition)

The abbreviation of each suburb name is visible in the figure.



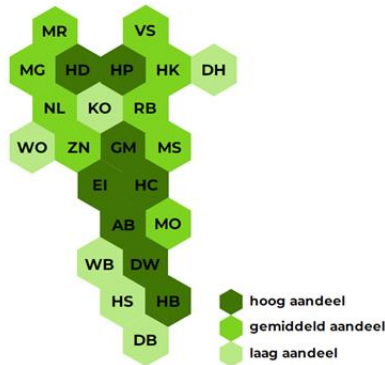
## Population: socio demographic characteristics

We'll define 3 or 4 blocks, streets, flats where the social housing corporation planned energy saving interventions (still under definition)

**Total population Heerlen:** 86.815 inhabitants (source: CBS October 2021)

The figure below is showing the population density per suburb.

Bevolkingsdichtheid per wijk in Heerlen



Bevolkingsdichtheid	2021
Heerlen: Wijk 10 Maria Gewanden en Terschuren	2051
Heerlen: Wijk 11 Mariarade	3740
Heerlen: Wijk 12 Hoensbroek-De Dem	4309
Heerlen: Wijk 13 Nieuw Lotbroek	2543
Heerlen: Wijk 14 De Koumen	206
Heerlen: Wijk 20 Vrieheide-De Stack	2343
Heerlen: Wijk 21 Heerlerheide-Passart	4447
Heerlen: Wijk 22 Heksenberg	3233
Heerlen: Wijk 23 De Hei	10
Heerlen: Wijk 24 Rennemig-Beersdal	2596
Heerlen: Wijk 30 Zeswegen-Nieuw Husken	2791
Heerlen: Wijk 31 Schandelen-Grasbroek	4291
Heerlen: Wijk 32 Meezenbroek-Schaesbergerveld	3385
Heerlen: Wijk 33 Heerlen-Centrum	4978
Heerlen: Wijk 34 Eikenderveld	6692
Heerlen: Wijk 35 Woonboulevard-Ten Esschen	80
Heerlen: Wijk 36 Welten-Benzenrade	749
Heerlen: Wijk 37 Bekkerveld	4658
Heerlen: Wijk 38 Caumerveld-Douve Weien	4275
Heerlen: Wijk 39 Molenberg	2196
Heerlen: Wijk 40 Heerlerbaan-Centrum	5741
Heerlen: Wijk 41 Heerlerbaan-Schil	1351
Heerlen: Wijk 42 De Beitel	16
Parkstad	1096
Bron	CBS Kerncijfers

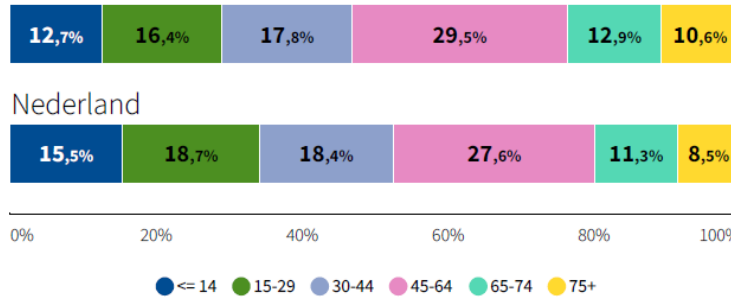
Figure 17. Population density per suburb

Source: CBS, October 2021

(Wijk = neighbourhood; Dark green is high density; Middle green is average; The table shows the number of people living suburb)

**Age characteristics:** Average age in Heerlen 45.5 year, Average age in the Netherlands 42.3 year (see Figure below).

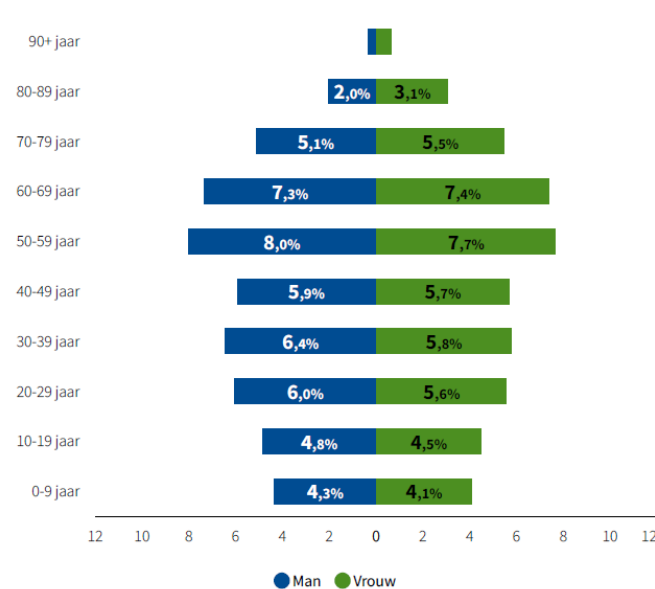
### Heerlen



### Nederland

Bron: CBS | 2021

### Heerlen



Bron: CBS | 2021

Figure 18. Population by age group and distribution male/female

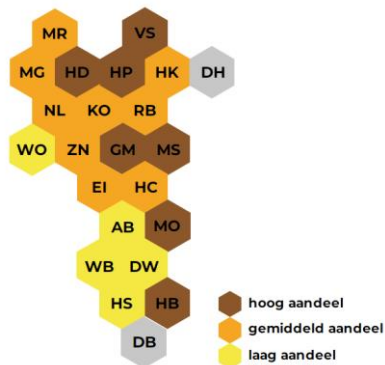
Source: CBS, 2021

### Foreign population:

In Heerlen 10,7 % of the population has a non-western background compared to 13.7% in the Netherlands. However, Heerlen has a few suburbs where the number of people with a migration background is present. Represented by foreign colourful shops and the mosque. Heerlen was a mining city until the 1970, in those days employment rates were high. In many suburbs of Heerlen the 3rd generation guest workers (Turkish and Moroccan) are still living in the neighbourhood.

## Socioeconomic figures

Laag inkomen per wijk in Heerlen



### Personen naar hoogte van het inkomen

Personen naar hoogte van het inkomen	Personen met een laag inkomen
Heerlen: Wijk 10 Maria Gewanden en Terschuren	46,2%
Heerlen: Wijk 11 Mariarade	41,9%
Heerlen: Wijk 12 Hoensbroek-De Dem	52,1%
Heerlen: Wijk 13 Nieuw Lotbroek	44,5%
Heerlen: Wijk 14 De Koumen	42,3%
Heerlen: Wijk 20 Vrieheide-De Stack	51,3%
Heerlen: Wijk 21 Heerlerheide-Passart	52,8%
Heerlen: Wijk 22 Heksenberg	41,6%
Heerlen: Wijk 23 De Hei	?
Heerlen: Wijk 24 Rennemig-Beersdal	45,1%
Heerlen: Wijk 30 Zeswegen-Nieuw Husken	45,5%
Heerlen: Wijk 31 Schandelen-Grasbroek	48%
Heerlen: Wijk 32 Meezenbroek-Schaesbergerveld	50,6%
Heerlen: Wijk 33 Heerlen-Centrum	41,7%
Heerlen: Wijk 34 Eikenderveld	45,8%
Heerlen: Wijk 35 Woonboulevard-Ten Esschen	36,7%
Heerlen: Wijk 36 Welten-Benzenrade	32,6%
Heerlen: Wijk 37 Bekkerveld	32,8%
Heerlen: Wijk 38 Caumerveld-Douve Weien	31,2%
Heerlen: Wijk 39 Molenberg	51%
Heerlen: Wijk 40 Heerlerbaan-Centrum	49,1%
Heerlen: Wijk 41 Heerlerbaan-Schil	35,1%
Heerlen: Wijk 42 De Beitel	?
Parkstad	42,7%
Speciale waarden	? Ontbreekt
Bron	CBS Kerncijfers Wijk

Figure 19. Level of incomes in Heerlen

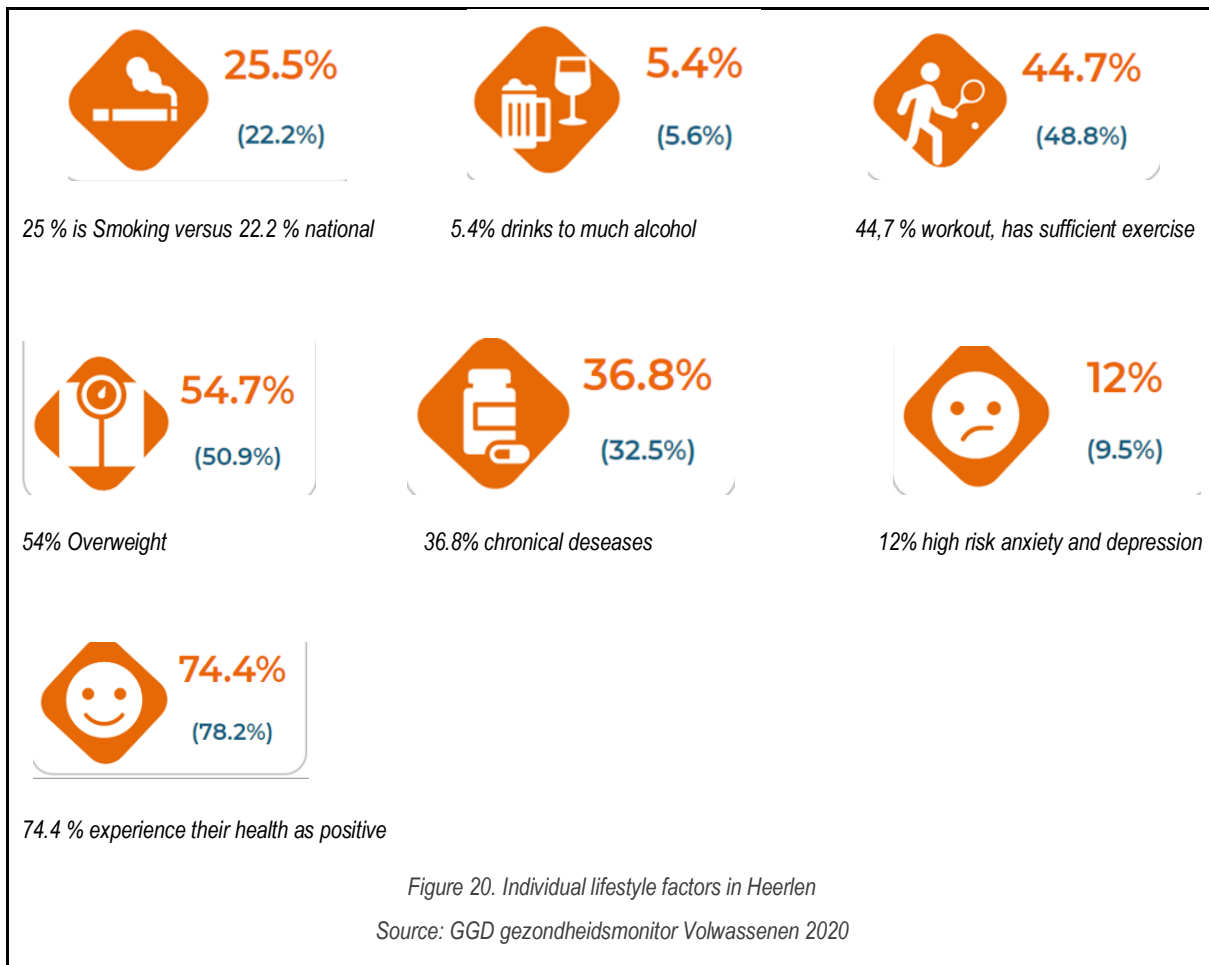
Source: CBS, 2021

(Brown colour represents high level of low incomes; Orange is average level of low incomes; Yellow is low level of low incomes; The grid shows the percentage and the number of people affected per suburb)

## Layer 1: Individual lifestyle factors

### HEALTH

Here below are represented some health aspects of lifestyles within Heerlen (in orange) compared to national average (in blue). In general, Heerlen presents less healthy habits than national average (smoking, overweight, anxiety, etc.).



## Layer 2: Social and community networks

In the area of Heerlen Noord there is a strong community trust, you can find sport clubs, playgrounds etc. just like in other parts of the city.

Heerlen Stand By! Is our partner for community building and counselling. Local community buildings can be found in each neighbourhood where people can go for a free cup of coffee. Aim for these community houses is to be inclusive and local; they provide also sport activities and organise meetings and information sessions, even digital meeting groups on facebook. (<https://www.heerlenstandby.nl/>)

The municipality of Heerlen provides an annual grant for 19 neighbourhoods in Heerlen through the neighbourhood organisations in each suburb, the goal is to promote social cohesion and activities for all inhabitants of the neighbourhood.

The website of the local neighbourhood organisation (<https://buurtorganisatie.nl/>) allows to have an insight on its programme and communication.

The municipality also organize activities to keep the neighbourhood clean and green and promote social wellbeing specific in each suburbs (<https://www.heerlen.nl/buurtactie.html>, <https://www.heerlen.nl/buitenkans.html>, <https://frisewindheerlen.nl/>)

All the above grants and initiatives promote social cohesion and community networks in Heerlen:

<https://www.heerlen.nl/steenbreek.html>

National grant also promoted in Heerlen: more green areas in the neighbourhood to promote a better lifestyle.

Migration level: In Heerlen 10,7 % of the population has a non-western background compared to 13.7% in the Netherlands.

However, Heerlen has a few suburbs where numerous people with a migration background is present. Represented by foreign colourful shops and the mosque. There is a strong community sense.

Heerlen was a mining city until the 1970, in those days employment rates were high. In many suburbs of Heerlen the 3rd generation guest workers (Turkish and Moroccan) are still living in the neighbourhood. In our communication we must address Arabic language and pictograms to inform this target group.

Each suburb is different and needs a tailor-made approach.

<https://www.heerlen.nl/buurten.html> showing on the website the specific characteristics of each suburb.

Plans are evaluated annually by professionals working in the field.

### Layer 3: Living and working conditions

#### WORKING CONDITIONS

##### Poverty and labour in Heerlen

The figures above show some key features about working conditions in Heerlen compared to the national average.

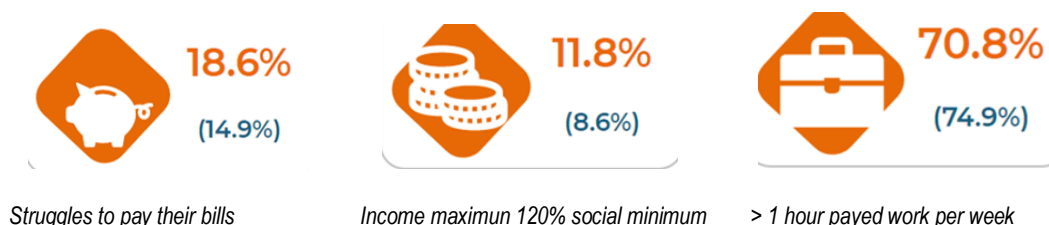
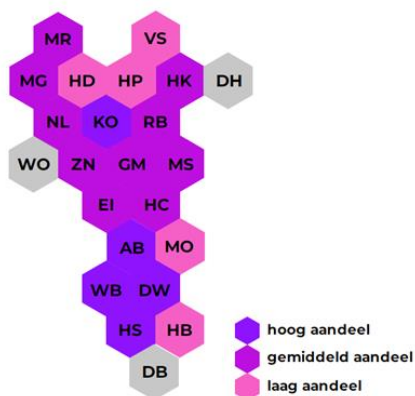


Figure 21. Economic conditions in Heerlen

#### Arbeidsparticipatie per wijk in Heerlen



Netto arbeidsparticipatie	Netto arbeid
Heerlen: Wijk 10 Maria Gewanden en Terschuren	56%
Heerlen: Wijk 11 Mariarade	63%
Heerlen: Wijk 12 Hoensbroek-De Dem	55%
Heerlen: Wijk 13 Nieuw Lotbroek	60%
Heerlen: Wijk 14 De Koumen	64%
Heerlen: Wijk 20 Vrieheide-De Stack	55%
Heerlen: Wijk 21 Heerlerheide-Passart	51%
Heerlen: Wijk 22 Heksenberg	63%
Heerlen: Wijk 23 De Hei	?
Heerlen: Wijk 24 Rennemig-Beersdal	63%
Heerlen: Wijk 30 Zeswegen-Nieuw Husken	62%
Heerlen: Wijk 31 Schandelen-Grasbroek	59%
Heerlen: Wijk 32 Meezenbroek-Schaesbergerveld	57%
Heerlen: Wijk 33 Heerlen-Centrum	59%
Heerlen: Wijk 34 Eikenderveld	58%
Heerlen: Wijk 35 Woonboulevard-Ten Esschen	?
Heerlen: Wijk 36 Welten-Benzenrade	64%
Heerlen: Wijk 37 Bekkerveld	70%
Heerlen: Wijk 38 Caumerveld-Douve Weien	68%
Heerlen: Wijk 39 Molenberg	54%
Heerlen: Wijk 40 Heerlerbaan-Centrum	53%
Heerlen: Wijk 41 Heerlerbaan-Schil	67%
Heerlen: Wijk 42 De Beitel	?
Parkstad	61%
Speciale waarden	? Ontbreekt
Bron	CBS Kerncijfe

Figure 22. Job market in Heerlen and percentage of people employed per suburb

Source: CBS, 2021

(Dark purple colour corresponding with a high share in the labour market, followed by average and light Pink colour for low share)

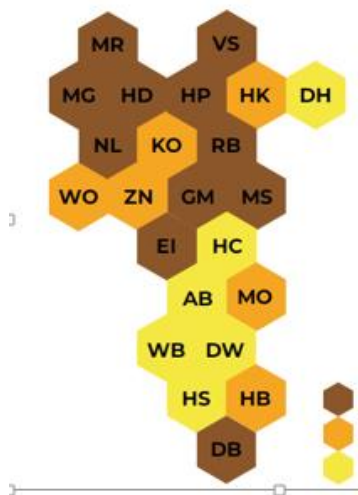
## EDUCATION

The figure below shows a lower education level in Heerlen compared to the national average. “Low education” includes education at the level of primary education, VMBO, the first 3 years of HAVO/VWO and the entrance course, the former assistant training (MBO1) and practical education.



Figure 23. Percentage of people with low education level (age between 18 and 64 in Heerlen)

Source: GGD, 2020



Laag opleidingsniveau	Opleidings
Heerlen: Wijk 38 Caumerveld-Dour	17%
Heerlen: Wijk 36 Welten-Benzenra	20%
Heerlen: Wijk 33 Heerlen-Centrum	21%
Heerlen: Wijk 37 Bekkerveld	22%
Heerlen: Wijk 23 De Hei	25%
Heerlen: Wijk 41 Heerlerbaan-Sch	27%
Heerlen: Wijk 14 De Koumen	31%
Heerlen: Wijk 35 Woonboulevard	33%
Heerlen: Wijk 40 Heerlerbaan-Cen	34%
Heerlen: Wijk 39 Molenberg	39%
Heerlen: Wijk 30 Zeswegen-Nieuw	39%
Heerlen: Wijk 22 Heksenberg	39%
Heerlen: Wijk 11 Mariarade	40%
Heerlen: Wijk 31 Schandelen-Gras	40%
Heerlen: Wijk 24 Rennemig-Beers	41%
Heerlen: Wijk 12 Hoensbroek-De D	42%
Heerlen: Wijk 10 Maria Gewanden	42%
Heerlen: Wijk 13 Nieuw Lotbroek	42%
Heerlen: Wijk 34 Eikenderveld	42%
Heerlen: Wijk 32 Meezenbroek-Sch	44%
Heerlen: Wijk 20 Vrieheide-De Sta	49%
Heerlen: Wijk 21 Heerlerheide-Pas	50%
Heerlen: Wijk 42 De Beitel	67%
Bron	CBS Kerncij

Dark brown: High share; Orange; average; yellow: low

low education level between 15-75 year percentage per neighbourhood

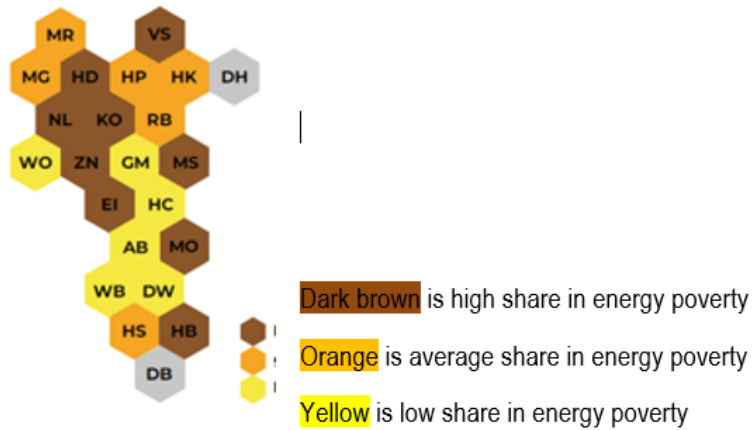
Figure 24. Education level per suburb. Source CBS, 2020, wijken en buurten

Also, the number of Illiterate inhabitants is high, and the education level (source CBS, 2020) is divided into:

- Low level: 24.050 inhabitants
- Average: 28.108 inhabitants
- High: 14.380 inhabitants

## ENERGY POVERTY

The figure below shows the level of Energy Poverty per suburb. The dark brown honeycombs are most present in Heerlen Noord, where the number of Energy Poverty is highest.



Neighbourhood	Percentage	Number of households
Wijk	Percentage	Aantal huishoudens
Hoensbroek de Dem	4,1	154
Mariarade	2,3	38
Vrieheide de Stack	5,9	167
Heerlerheide Passart	3,7	107
Rennemig Beersdal	2,9	69
de Koumen	4	8
Nieuw Lotbroek	4,2	84
Maria Gewanden Terschuren	2,2	45
Heksenberg	2,9	43
Zeswegen Nieuw Husken	4,2	73
Woonboulevard ten Esschen	0	0
Meezenbroek Schaesbergerveld	4,9	164
Schandelen Grasbroek	1,2	35
Welten Benzenrade	1,2	29
Heerlen Centrum	0,4	15
Eikenderveld	4,1	62
Bekkerveld	0,9	13
Molenberg	7,5	161
Caumerveld Douve Weien	0,2	7
Heerlerbaan schil	2,5	63
Heerlerbaan centrum	4,8	103
Totaal		1440

Figure 25. Energy Poverty per suburb. Source CBS, 2021



## HOUSING CONDITIONS

People who rent a house from their tenant (social housing corporation and private rental) are dependant when it comes to energy saving measures that provide impact. There are just small things that they can introduce in their homes themselves.

People living in Energy Poverty often rent a place with low energy labels.

The city region of Parkstad including Heerlen has launched the one stop shop who provide knowledge and free energy advice. Now this service is just for home owners, but they are planning to promote their services also to tenants.

## CITY FACILITIES

As an illustrative example, here below is an overview of utility buildings in Vrieheide:

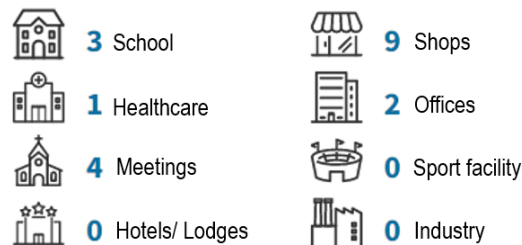


Figure 26. Utility buildings in Vrieheide suburb

## Layer 4: General socio-economic, cultural and environmental conditions

### SOCIO ECONOMIC DEVELOPMENT

The programme of Heerlen Noord describes the dynamics of this area.

"Heerlen-Noord covers more than two-thirds of the municipal territory, more than 50,000 people live there. The consequences of the mine closure in the seventies of the last century were most felt here, and still are. The socio-economic situation deteriorated, which manifests itself in many areas, such as health and safety"

This is a quotation from the Urban programme Heerlen Noord, one out of 16 urban renewal programme areas in the Netherlands. This is also why we choose our target group location in Heerlen Noord.

The city is working hard to improve its image and to boost the self-confidence of inhabitants who need to feel safe and at home in their neighbourhoods. In Heerlen Noord there are challenging goals that need to be achieved to improve the life standard and wellbeing of the people, fighting Energy Poverty and promoting health will be a strong part of this approach, health and wellbeing always start on an individual level in people's homes.

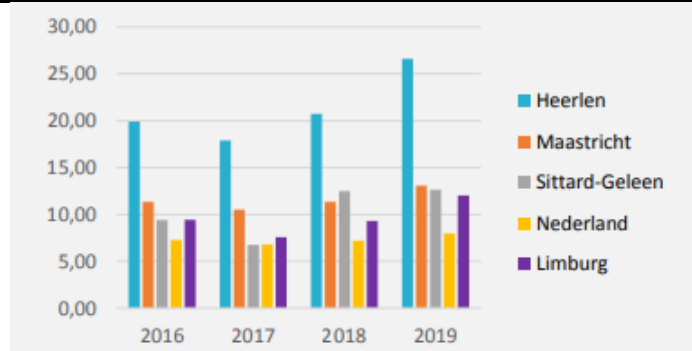


Figure 27. Drugs related crimes

Source: Municipality of Heerlen security analyses 2016/2019



Figure 28. Murals (left: Heerlen city centre and right: Heerlen Nord)

Efforts are being made in gathering data of each suburb and communicating them to their inhabitants. See the Figure below as an example (suburb Heerlerheide - Passart ). It shows the amount of social housing and private housing, utilities, energy labels, energy use, social factors etc. This provides a good insight for the demographics of each suburb.

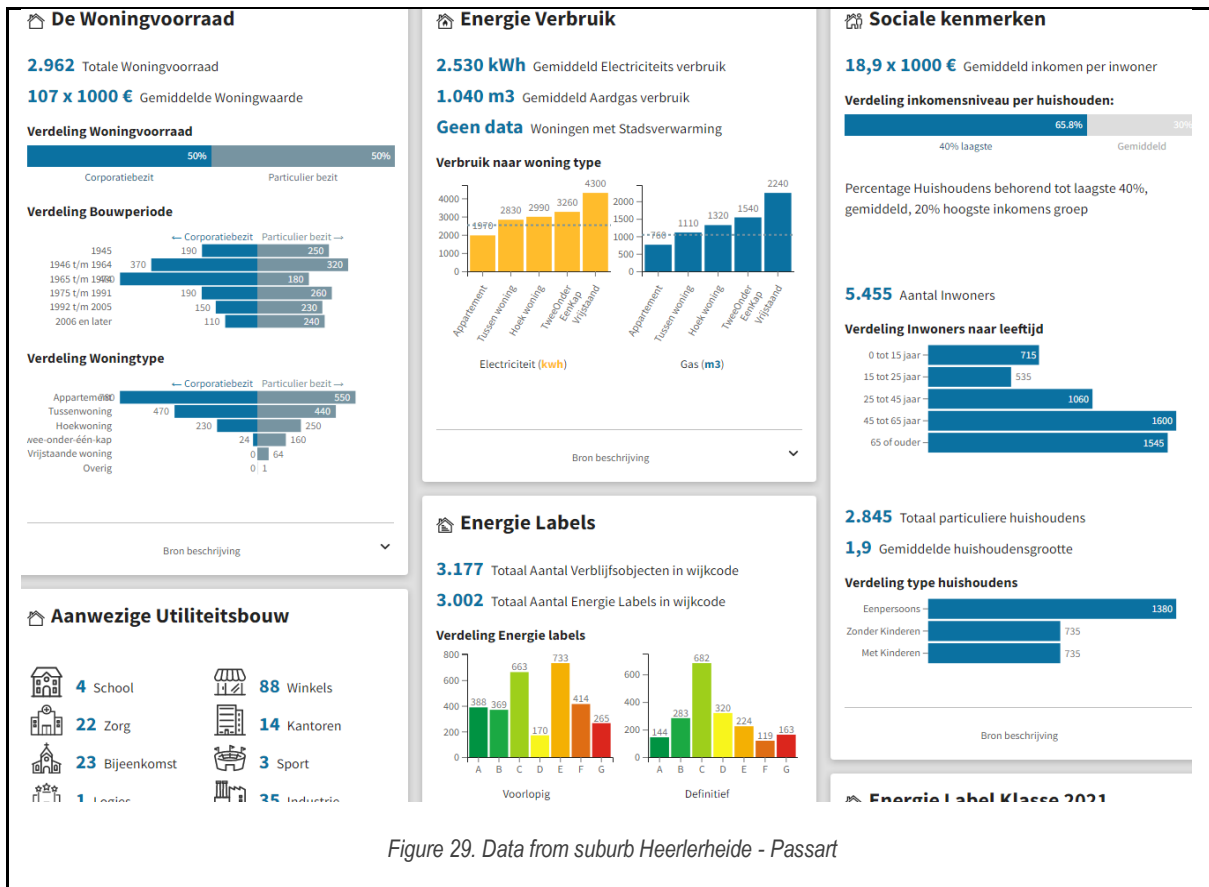


Figure 29. Data from suburb Heerlerheide - Passart

### 3.4.2. Target population data analysis and conclusions

In Heerlen Noord indicators of illiteracy, multicultural background, low educational level and bad housing conditions are present.

We asked the social housing corporations to share their planning for sustainable energy saving measures and renovations for 2022 and 2023 in our focus area Heerlen Noord.

The suburbs Hoensbroek de Dem, Vrieheide de Stack, Meezenbroek Schaesbergerveld, Heerlerheide Passart and Molenberg show poorer indicators than other neighbouring suburbs in the city.

#### a. Needs and Assets of the target population

##### NEEDS/ WEAKNESSES (to be minimized through the WUP)

- Low income compared to city average
- Higher rate of Illiteracy compared to the rest of the city



- Multicultural background
- Low educational level
- High rate of debt
- Dependence of the social housing corporation (impact interventions)

#### **ASSETS FOR HEALTH AND WELLBEING (to be promoted through the WUP)**

- Strong community trust
- Strong social support networks
- Many community initiatives
- Participation in the neighbourhoods is higher compared to the southern part of the city. (In 2021 there were 100 requests of social participation in the neighbourhood of Heerlen Noord to promote social cohesion, compared to 23 in the southern part of the city)

#### **b. Causes for Energy Poverty in the pilot area and effects on health. Why our target population ends up with Energy Poverty?**

The pathway or process that explains how people end up with Energy Poverty in all pilots can be summarised through the figure below. It also shows the effects of Energy Poverty in mental and physical health of people, some of them measured during the project for the research evaluation. The orange-coloured boxes are the areas where this specific WUP will intervene through its different actions, minimising needs and maximising assets of these fields. Please note that the outline of some boxes has also been coloured based on its corresponding layer in the social ecological model (see figure legend). Green boxes contain the measurements that all pilots will take during the project for evaluation purposes.

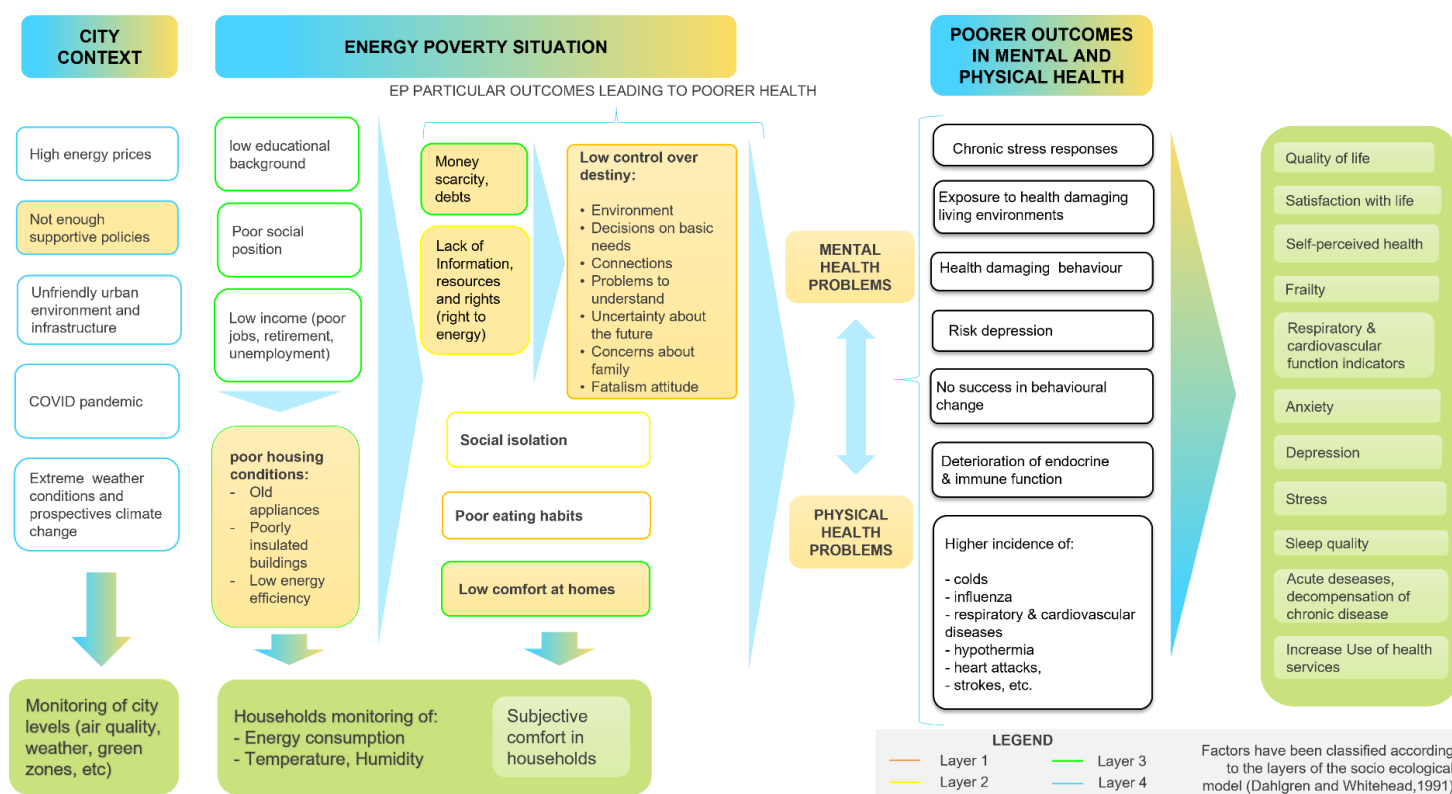


Figure 30. Heerlen pilot's pathway of Energy poverty causes and effects in health

## 3.5. Objectives of the WUP

### 3.5.1. Objective of the WUP

The Heerlen WUP aims to fight Energy Poverty by collaborating with social housing corporations to improve living conditions and its impacts on health and wellbeing in vulnerable households in the neighbourhood of Heerlen Noord. Actions across different levels are taken: raising awareness, knowledge sharing and linking opportunities and different programs, introducing policy measures (e.g., energy cost allowance), improving individual lifestyles.

The main goal of the WUP is for households to receive different sustainable measures to fight Energy Poverty so they feel more comfortable in their homes and spend less money on energy bills.

Awareness, sufficient information, knowledge and guidance are keys in this approach to boost the overall wellbeing of people living in Energy Poverty. Point of departure in this approach is a multidisciplinary set up between the municipality, social- and health services, social housing corporations etc.

The actions will take place in the neighbourhoods of Heerlen Noord and will be oriented to low-income households susceptible to be in Energy Poverty, being the three main inclusion criteria: (1) renting from a social housing corporation (2) spending a disproportionate share of the income on energy bills, (3) not being able to keep comfort conditions at home. (4) lack of sustainable energy saving measures are implemented in the house.

However, Heerlen has an inclusive approach, so we don't define special needs target groups.

### 3.5.2. Tomorrow's newspaper

To help envisioning the impact of the WUP, here below is an imaginary news in a fictitious newspaper talking about our project results in five years from now.

## **35 % more pleasant, healthy and comfortable houses in Heerlen, more people are tackling Energy Poverty each day.**

January 2027



*Following the EU project Wellbased (2021-2024), which aimed to raise awareness to the problem of Energy Poverty and its negative impact on health and wellbeing, and focused on finding potential solutions to the problem.*

*Different sustainable energy measurers were implemented in Heerlen to fight Energy Poverty, hard and soft measures like impressive renovations, energy boxes, awareness campaigns and roadmaps were introduced.*

*Most important achievement is that collaboration was established between social housing corporations, citizens, one stop shop and social- health, housing and energy domains.*

*"I feel much better since the social housing corporation isolated my house, the air I breathe is fresher, I feel more energetic and comfortable in life. Because of the grant supporting my energy bill I was able to pay of my dept.", declared one of the participants.*



*Also, I know now where to look for information on different options.”*

## 3.6. Overview of Actions

The following actions will be performed during the pilot project (detailed in 3.8.):

LIST OF WUP MAIN ACTIONS	
<b>Layer 1: Individual lifestyle factors</b>	
<ol style="list-style-type: none"><li>1. Energy efficiency trainings</li><li>2. (Energy) debt support</li></ol>	
<b>Layer 2: Social and community networks</b>	
<ol style="list-style-type: none"><li>3. Training professionals on Energy Poverty and what to do?</li><li>4. Open talks/ community meetings about energy issues in the local community including (energy) advice</li></ol>	
<b>Layer 3: Living and working conditions</b>	
<ol style="list-style-type: none"><li>5. Energy boxes delivery and installation/ advice</li><li>6. Collaboration with local housing corporation who provide (bigger impact) energy effective measures</li><li>7. Home audits</li></ol>	
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>	
<ol style="list-style-type: none"><li>8. Policy advocacy plan (Parkstad level)</li><li>9. Raising awareness in local neighbourhood newspapers</li><li>10. Local stakeholder network collaboration to promote actions that fight Energy Poverty on different levels.</li></ol>	



## 3.7. Impact indicators

### 3.7.1. General impact indicators

The table below shows information about how the pilot will collect the general impact indicators established for the project.

Variable	Instrument/indicator	Data Source	Data collection
Sociodemographic details: age, sex, gender, occupation, etc.	Ad-hoc questionnaire	Online* questionnaire for data collection	<input type="checkbox"/> Questionnaire completed directly by participants  <input type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ..... <b>Definition in progress</b>
Health and wellbeing measures			
Quality of Life	Quality of Life (HRQoL)	Online version of the clinical standardised questionnaires	<input type="checkbox"/> Questionnaire completed directly by participants  <input type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ..... <b>Definition in progress</b>
Satisfaction with life	Satisfaction with Life Scale (SWL)		
Mental health: Depression	Depression and Anxiety Stress Scales (DASS/BSI)		
Mental health: Anxiety			
Mental health: Stress			
Self-perceived health	SF-12 Health Survey (SF12)		
Frailty	Self Perceived Multidimensional Impairment Index (SELFY-MPI)		
Subjective comfort in households	Self-reported scale <sup>26</sup>	Online version of the clinical standardised questionnaire	<input type="checkbox"/> Other: ..... <b>Definition in progress</b>
Respiratory & cardiovascular function indicators	Peak flow measurement	IoT Home health control devices, real time monitoring	<input type="checkbox"/> Manual collection c) <input type="checkbox"/> Directly by participants d) <input type="checkbox"/> By another stakeholder  <input type="checkbox"/> Collection through wearables devices  <input type="checkbox"/> Other: ..... <b>Definition in progress</b>
	SpO2 measurement		
	Blood pressure measurement		
	Sleep quality measurement		
Incidence of the acute diseases	Number of Diagnosed acute diseases	Electronic Health Records direct extraction and/or online questionnaire	<input type="checkbox"/> Direct extraction  <input type="checkbox"/> Questionnaire completed directly by participants  <input type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ..... <b>Definition in progress</b>
Decompensation of chronic disease	Number of diagnosed exacerbations, all health settings (Emergencies, acute units, hospitalisation, primary care)		
Readmissions	Admissions in the ED (emergency department), acute units or regular hospitalisation		
Use of primary attention services	Visits to the primary attention services distinct from those aimed at renewing the prescriptions		

<sup>26</sup> Frontczak, M., Andersen, R. V., & Wargocki, P. (2012).



Life experienced	Impressions, comments, experience and subjective perceptions captured in focus groups and interviews & codified	Qualitative analysis codified records	Partner responsible (UNIVLEEDS) will provide the methodology and keep the data collected
Energy efficiency evaluation			
Energy consumption	Yearly Kw/day	Energy providers (DSOs) App	<b>Definition in progress</b>
Household income spent on energy	% of income/Euros	Online questionnaires	<input type="checkbox"/> Questionnaire completed directly by participants  <input type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ..... <b>Definition in progress</b>
Household conditions: temperature	Celsius Degree	IoT DT home sensors, real time monitoring	Definition in progress. To be detailed in D3.1
Household conditions: humidity	% Relative humidity		
Household conditions: air quality	CO2 and CO concentration		
City pollution	CO1, CH4, N2O, PM	SmartCity Open platforms (city-level/local data) Secondary sources (city reports, etc.)	CBS en KNMI
City air quality	CO1, CH4, N2O, PM, soot & smoke (wildfires, urban fire), specific gases, dust, etc.		
City weather	Rain days per year, Floods reported per year, Extreme heat days (>30°C) per year, Days below >5°C per year, Average temperatures, per season		
City climate	Comparison between these measures and the 10-previous-year reports and the 25-previous-year reports		
City green spaces	Green spaces (m2) per km2 Existence, localisation and length of <i>urban heat islands</i> Trees and parks or any other green space (m2) in <i>urban heat islands</i> (km2), if any		



### 3.7.2. Pilot Specific indicators

PILOT SPECIFIC INDICATORS	
<b>Layer 1: Individual lifestyle factors</b>	
<ul style="list-style-type: none"> <li>• Energy efficiency trainings</li> <li>• (Energy) debt support</li> </ul>	<p>Min 4 energy efficiency trainings</p> <p>Provide (energy) debt advice in at least 60% of the cases</p>
<b>Layer 2: Social and community networks</b>	
<ul style="list-style-type: none"> <li>• Training professionals on Energy Poverty and what to do?</li> <li>• Open talks/ community meetings about energy issues in the local community including (energy) advice</li> </ul>	<p>Min. 4 trainings on EP detection to professionals</p> <p>Min. 4 open talks about energy issues in Heerlen Noord</p>
<b>Layer 3: Living and working conditions</b>	
<ul style="list-style-type: none"> <li>• Energy boxes installation/ advice</li> <li>• Collaboration with local housing corporation who provide (bigger impact) energy effective measures</li> <li>• Home audits</li> </ul>	<p>Provide 1 energy box to min 50% of the participant households and install them</p> <p>Collaborate in the project with at least 2 social housing corporations within the area</p> <p>2 environmental home audits per participating suburb of Heerlen Noord</p>
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>	
<ul style="list-style-type: none"> <li>• Policy advocacy plan (Parkstad level)</li> <li>• Local stakeholder network collaboration to promote actions that fight Energy Poverty on different levels.</li> <li>• Raising awareness in local neighbourhood newspapers</li> </ul>	<p>Min. 2 different protocols/ intervention plans</p> <p>Min 3 meetings with local stakeholders in the neighbourhood to provide different actions</p> <p>Publish in minimal 3 local neighbourhood newspapers/ websites</p>

## 3.8. WUP Detailed planification

(Please note that some aspects are still under definition and will be confirmed in the next months).

ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 1.</b> Energy efficiency trainings	
Description	
<p>Inhabitants (people suffering from energy poverty) can benefit from energy efficiency trainings that are provided.</p> <p>This can be provided on different levels;</p> <ul style="list-style-type: none"> <li>- How to use your home efficiently?</li> <li>- What can you do to save on energy costs?</li> <li>- Where can you go when you have questions and challenges ( roadmap)?</li> </ul>	
Outcome of the action	
Min 4 energy efficiency trainings in Heerlen	
Stakeholders involved	Period it covers
Social housing corporation Heerlen Stand-by! ( community building and counselling) Heerlen Municipality GGD ( local Healthcare) Woonwijzer Winkel ( one stop shop) Parkstad city region ( Policy measures)	Start January 2023- Ongoing
Budget and resources (from wellbased project or from other sources)	
Parkstad city region has to develop an implementation plan before May 2023 including energy coaches and trainings, budget is available for each municipality and we will also use this budget to implement trainings. Also looking for budget possibilities within the social department ( prevention) to start the first kick – off.	



ACTIONS OF YOUR WUP	
Title (and number) of the action	
ACTION 2. (Energy) debt support	
Description	
<p>Due to the high energy prices the group of people who are suffering from energy poverty increase every day. The social department has different support methods and wants to expand them, providing:</p> <ul style="list-style-type: none"><li>- solid information on energy debt</li><li>- solutions through roadmaps</li><li>- knowledge about energy contracts</li><li>- assessment e.g. policy tools, hotline, social support implement (energy)dept.</li><li>- support it in existing methods and training to social (dept) department employees.</li></ul>	
Outcome of the action	
Provide (energy) dept advice in at least 60% of the cases	
Stakeholders involved	Period it covers (develop it on the next chart)
Main Energy contractors ( e.g. Essent) Heerlen Stand-by! (community building and counselling and Alcantar Schuldhulp maatje) Heerlen Municipality social department	Aug 22 – May 23
Budget and resources (from wellbased project or from other sources)	
Use existing structures Municipal social department and add provision of knowledge	



ACTIONS OF YOUR WUP	
<b>ACTION 3.</b> Training professionals on Energy Poverty and what to do?	
<b>Description</b>	
<p>It is important that social workers and community workers are aware, recognise the topic, and share basic knowledge. That is why trainings will be realised about:</p> <ul style="list-style-type: none"><li>- How to use your home efficiently?</li><li>- How to save on energy costs?</li><li>- Where can you go with your questions and challenges ( e.g. roadmap)?</li></ul>	
<b>Outcome of the action</b>	
<p>Min. 4 trainings on EP detection to professionals in each city district</p> <p>All employees of Stand-By! And municipal employees active in the field.</p>	
Stakeholders involved	Period it covers
<p>Heerlen Stand-by! ( community building and counselling)</p> <p>Heerlen Municipality including social department</p>	<p>March 2022 - Ongoing</p>
<b>Budget and resources (from wellbased project or from other sources)</b>	
<p>Municipality social department and prevention , Wellbased for the project leader</p>	



ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 4.</b> Open talks/ community meetings about energy issues in the local community including (energy)advice	
Description	
Together with the local communities and Stand-BY we organise open talks and community meetings TO share experiences, energy advise and Q&A	
Outcome of the action	
Min. 4 open talks about energy issues in Heerlen Noord	
Stakeholders involved	Period it covers
Heerlen Stand-by! ( community building and counselling)  Community organisation Heerlen Municipality ( area manager) GGD ( local Healthcare) Woonwijzer Winkel ( one stop shop) Parkstad city region ( Policy measures)	August 2022- May 2023
Budget and resources (from wellbased project or from other sources)	
Stand-By and municipality, integrate it in existing community work and prevention	



ACTIONS OF YOUR WUP	
Title (and number) of the action	
ACTION 5 (a). Delivery of energy box	
Description	
Provide each (pilot) household with energy box	
Outcome of the action	
All participants ( 310) receive an energy box, information how to implement it and if needed support for installation. All Heerlen inhabitants know where they can receive an energy box.	
Stakeholders involved	Period it covers (develop it on the next chart)
Woonwijzerwinkel ( one stop shop) who provide energy boxes Debt support department Charities and free food organisations (Voedselbank, Caritas)	Oct 2022 – Dec 2023
Budget and resources (from wellbased project or from other sources)	
Pending with municipality ( department availability ) and one stop shop Budget Parkstad and part of Wellbased budget for 310 households ( intervention and control group).	





ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 5 (b)</b> Energy boxes delivery and installation/ advice	
Description	
<p>Inhabitants (people suffering from energy poverty) can benefit from energy box installation and personal advice.</p> <p>The one stop shop is able to provide that and also the social housing corporation can provide concierges with technical support.</p>	
Outcome of the action	
Provide 1 energy box to min 50% of the participating households and install them	
Stakeholders involved	Period it covers
Social housing corporation ( impact housing) Heerlen Municipality Woonwijzer Winkel ( one stop shop)	October 2022 – May 2023
Budget and resources (from wellbased project or from other sources)	
Housing corporation, municipality, Woonwijzerwinkel ( one stop shop) and Wellbased.	



ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 6. Collaboration with local housing corporation who provide (bigger impact) energy effective measures</b>	
Description	
<p>Discuss planning, priorities and the actions on sustainable measures and renovation interventions by the social housing corporation.</p> <p>Inhabitants are dependant and relay on the social housing corporation for the impact measures ( e.g. double glazed windows, insulation, solar panels, ventilation etc.)</p>	
Outcome of the action	
Collaborate in the project with at least 2 social housing corporations within the area and integrate this in the performance actions “prestatie afspraken”	
Stakeholders involved	Period it covers
Social housing corporation Heerlen Municipality Inhabitants/ tenants	Start June 2022 - Ongoing
Budget and resources (from wellbased project or from other sources)	
Social Housing corporations renovation budget	



ACTIONS OF YOUR WUP	
Title (and number) of the action	
ACTION 7. Home Audits	
Description	
Conduct environmental home audits	
Outcome of the action	
2 environmental home audits per participating suburb of Heerlen Noord to find out more about the environmental conditions in the different houses.	
Stakeholders involved	Period it covers
GGD ( local Healthcare) Woonwijzer Winkel ( one stop shop)	Aug 2022 – july 2023
Budget and resources (from wellbased project or from other sources)	
GGD is our partner in the pilot, they have environmental specialist in their teams to conduct the home audits.	



ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 8.</b> Policy advocacy plan (Parkstad level)	
Description	
<p>Heerlen is part of the Parkstad region, a collaboration between 7 different municipalities in the neighbourhood.</p> <p>Together all the municipalities are preparing an integrated policy action plan to fight energy poverty. All Tailor-made for each city specific indicators.</p>	
Outcome of the action	
Min. 2 different protocols/ intervention plans	
Stakeholders involved	Period it covers
Heerlen Municipality Parkstad city region ( Policy measures)	March 2022 – May 2023
Budget and resources (from wellbased project or from other sources)	
National Budget to promote energy tools and fight energy poverty	



ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 9.</b> Raising awareness in local neighbourhood newspapers	
Description	
<p>Heerlen has a local newspaper called the “citynews” and a lot of neighbourhoods distribute a local paper in their area.</p> <p>Also some have a website where they publish local events.</p> <p>The Wellbased project will be promoted in the local newspapers and most of all, it will inform people on the topic of energy poverty, energy measures and energy chances.</p>	
Outcome of the action	
Publish in minimal 3 local neighbourhood newspapers/ websites	
Stakeholders involved	Period it covers
Heerlen Municipality Wellbased project and partners  Local community organisations	Start june 2022 – Annual of half year article depending on the progress.
Budget and resources (from wellbased project or from other sources)	
Municipality department of community work	



ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTIONS 10.</b> Local stakeholder network collaboration to promote actions that fight energy poverty on different levels.	
Description	
Promote strong local network partners and impact bonds between different stakeholders who want to fight energy poverty and promote sustainable energy measures.	
Outcome of the action	
Min 3 meetings with local stakeholders in the neighbourhood to provide different actions	
Stakeholders involved	Period it covers
Well based project partners Social housing corporation Heerlen Stand-by! ( community building and counselling) Community organisations Heerlen Municipality GGD ( local Healthcare) Woonwijzer Winkel ( one stop shop) Parkstad city region	Jan 2023 - Ongoing
Budget and resources (from wellbased project or from other sources)	
Wellbased integrated with local budget in the neighbourhoods	



Table 17. Timeline of WUP (Heerlen)

	Aug. 2022	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	May. 2023	Jun. 2023	Jul. 2023	Aug. 2023	Sep. 2023	Oct. 2023	Nov. 2023	Dec. 2023	Jan. 2024
<b>Layer 1 - Individual lifestyle factors</b>																		
<b>ACTION 1.</b>																		
Energy efficiency trainings																		
1.1. develop integrated tailor-made teaching material																		
1.2. identify trainers and beneficiaries																		
1.3. plan trainings and venue																		
1.4. Performance training																		
<b>ACTION 2.</b>																		
Energy debt support																		
2.1. needs assessment e.g. policy tools, hotline, social support																		
2.2. identify structure and provide roadmap																		
2.3. implement in existing methods																		

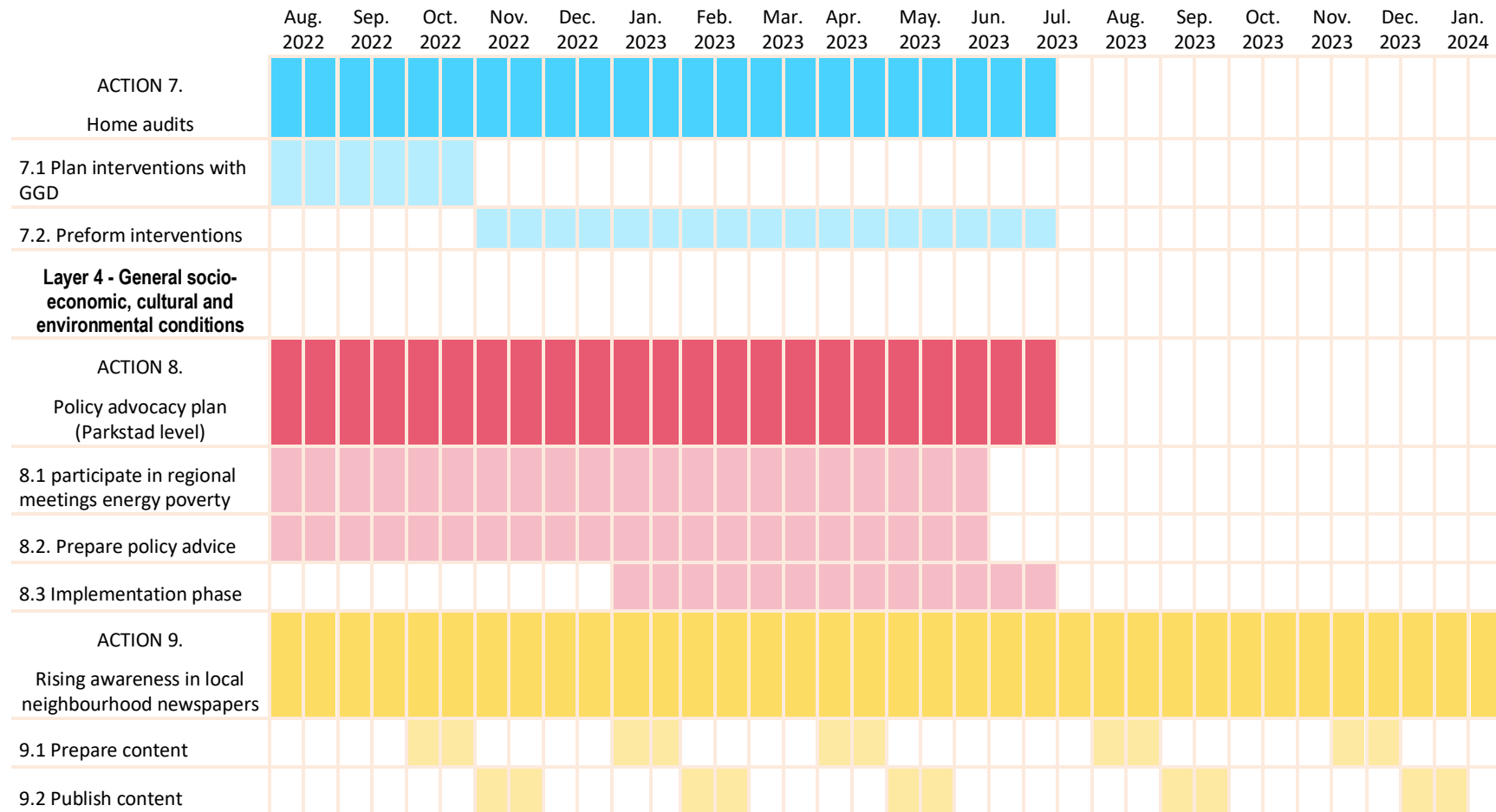


	Aug. 2022	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	May. 2023	Jun. 2023	Jul. 2023	Aug. 2023	Sep. 2023	Oct. 2023	Nov. 2023	Dec. 2023	Jan. 2024
<b>Layer 2 - Social and Community networks</b>																		
<b>ACTION 3.</b>																		
Training Professionals on EP																		
3.1 prepare training materials and invitations																		
3.2. plan trainings and venue																		
3.3. Performance																		
<b>ACTION 4.</b>																		
Open talks/ community meetings																		
4.1 Prepare invitations and scope																		
4.2 Plan venue and send invitations																		
4.3. Meetings																		





	Aug. 2022	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	May. 2023	Jun. 2023	Jul. 2023	Aug. 2023	Sep. 2023	Oct. 2023	Nov. 2023	Dec. 2023	Jan. 2024
<b>Layer 3 - Living and working conditions</b>																		
<b>ACTION 5 (a).</b>																		
Delivery energy box																		
5.a1. identify urgent content of the box																		
5.a2. identify target group																		
5.a3. distribute boxes																		
<b>ACTION 5 (b)</b>																		
Energy boxes installation/ advice																		
5b.1. organise energy box																		
5b.2. Hand out, installation & advise																		
<b>ACTION 6.</b>																		
Collaboration housing corporation																		
6.1 introduce pilot and identify common goals																		
6.2. establish working groups and meetings																		
6.3 renovation and interventions PDCA																		



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## Chapter 4: Jelgava (Latvia)

### 4.1. Overview of the WUP (Jelgava, Latvia)



#### URBAN PROGRAM

##### PERIOD

Pilot activities: 12 months  
(AUG 2022/JAN 2023 to JUL 2023/DEC 2023)<sup>1</sup>  
+ follow-up audit 6 months after the  
end of the project activities

##### RESPONSIBLE AUTHORITY

Jelgava Pasvaldības Operatīvas  
Informācijas Centrs (POIC)

##### OTHER KEY STAKEHOLDERS

**Department of Social Services (DSS):** recruitment and support to participants  
**Department of Real Estate (DRE):** social housing responsible  
**Zemgale Regional Energy Agency:** energy efficiency and renewables' education and technical support

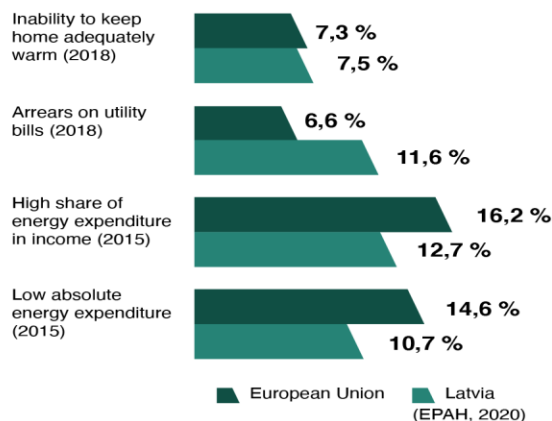
PILOTSITE  
**JELGAVA**  
(Latvia)

#### THEMATIC SCOPE

##### LATVIA: ENERGY POVERTY COUNTRY DATA

- According to EUROSTAT, at least 8% of population had problems to keep their houses adequately warm in 2019

##### Performance relative to EU average



##### JELGAVA: SOCIAL CONTEXT OF THE CITY

- Total population: 60,564 (2021)
- During the last 6 years (2016 – 2021), population has decreased by 1.7%
- High dependency ratio (632) in 2021
- Ethnic composition: Latvians (59.9%), Russians (25.5%), Belarusians (4.9%) and Ukrainians
- Low unemployment level (5%)
- Support provided to 330 "poor families" (<272€/month) and 883 "low-income families" (<370€/month) in 2020

##### Energy poverty and housing local conditions

- Most of the residential buildings (79%) were built during the Soviet Union times (1960-1989) with bad thermal resistance
- Many houses are still not renovated
- In most of houses there is central heating system but without heating regulation devices and inadequate habits, this often leads to mould and other problems in the house

##### NATIONAL CURRENT POLICY TO TACKLE ENERGY POVERTY

- Official National definition of Energy Poverty (amendment of Law on Energy, 2021)
- Housing subsidies to energy poor households managed by local municipalities, based on household income
- Consumer protection measures from 2021 (further subsidies for protected users)
- Energy efficiency improvements in housing sector for next planning period 2021-2027 through EU structural funds.
- Consumer education on energy efficiency provided by biggest energy providers and regional agency

##### INTEGRATION IN MUNICIPAL ACTION PLANS AND OTHER LOCAL PROJECTS

- EU Covenant of Mayors (2009)
- Sustainable energy and climate action plan 2021 – 2030, including EP focus
- Health promotion program for the city of Jelgava 2016 – 2022
- City of Jelgava development strategy of culture 2021 – 2027
- Educational campaigns on energy efficiency habits by Zemgale energy agency and company providing centralised heating services in Jelgava "Gren Jelgava"

### TARGET POPULATION

<b>INTERVENTION AREA</b>	City of Jelgava	<b>TOTAL POPULATION</b>	60,564 (2021)
<b>VULNERABLE POPULATION</b>	Population living in a house more than 25 years old and having problems to pay their bills. Vulnerable population likely to be found are long term-unemployed, disabled people, single-parent families, families with more than 3 children, pensioners, etc. Long term-unemployed (>1 year), disabled people, pre-retirement unemployed, single-parent families, families with more than 3 children and pensioners (especially lonely pensioners)		
<b>NUMBER OF WUP PARTICIPANTS</b>	146 for intervention group (+ 146 for control group)		

### MAIN EP SOCIAL DETERMINANTS OF HEALTH IN WUP TARGET POPULATION<sup>2</sup>

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#### CITY INFRASTRUCTURE

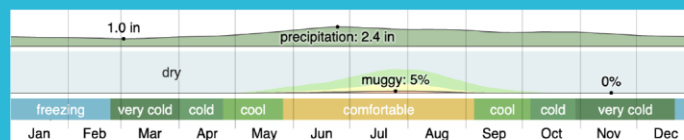
- ☺ Good infrastructure and green environment that motivates people to do physical activity

#### MUNICIPALITY COMMITMENT

- ☺ Strong support from Jelgava municipality to vulnerable groups of people and NGOs
- ☺ Health promotion program for the city of Jelgava

#### WEATHER AND AIR CONDITIONS

- ☹ Hard winters: average T below -3°C in winter (more than 60% of the energy is spent in heat supply)
- ☺ Not hard summers (rarely above 28°C)
- ☹ Increasing concentration of airborne dust and pollen
- ☹ Risk of flooding



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#### WORKING CONDITIONS

- ☹ Low income level
- ☺ High entrepreneurship
- ☺ Promotion of social business
- ☺ Low unemployment level (5%)

#### HOUSING CONDITION

- ☹ Old housing and some in poor conditions (41 years old, multistorey buildings with low thermal resistance not renovated)
- ☹ Poor housing conditions satisfaction level

- ☹ No regulation devices and not adequate habits lead to mould
- ☹ Major energy efficiency changes unaffordable
- ☺ Central heating in 90% houses
- ☺ Some energy efficiency measures implemented by housing maintenance companies

#### EDUCATION

- ☺ Good educational infrastructure: plenty of opportunities to learn and study

- ☺ High educational level: 1/3 have high level education

#### HEALTH EQUIPMENT

- ☹ Low satisfaction with health equipment

#### OTHER LIVING CONDITIONS

- ☺ General satisfaction with living in the city (95,2% satisfied or very satisfied)

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#### ASSOCIATIVE NETWORK

- ☺ Great diversity of different NGOs that are very active (Education, health care, sport, ethnic minorities...)

#### KEY COMMUNITY ACTORS

- ☺ ~ 4000 students in Latvia University of Life Sciences and Technologies
- ☺ Zemgale NGOs Centre is the leading NGO in the region

#### UNWANTED LONELINESS AND SOCIAL ISOLATION

- ☹ Shame due to housing conditions
- ☹ Problems with children socialization

#### UNHEALTHY / HEALTHY LIFESTYLES AND HABITS

- ☹ Main causes of mortality: diseases of the circulatory system and neoplasms
- ☹ Alcohol poisoning is an issue
- ☺ Mortality from external causes (e.g. suicide, traffic accidents, violence...) lower than in the country

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- Aged population
- Vulnerable families with many children
- Multi ethnic origins, mostly from East Europe

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### OBJECTIVE

- To define and test different intervention activities to energy poor families and individuals
- To establish potential support measures which can be presented at political level for further development of social support targeted to those in need



### ACTIONS & PILOT-SPECIFIC RESULT INDICATORS

### PILOT-SPECIFIC RESULT INDICATORS

#### LAYER 1 · Individual Lifestyle factors

- Energy audits
- Training to energy vulnerable people
- Develop educational materials

No pilot-specific result indicators

#### LAYER 2 · Social and Community networks

- Information and educational activities organised through local NGO's

#### LAYER 3 · Living and working conditions

- Energy Efficiency Toolkit with light bulbs

#### LAYER 4 · General socio-economic, cultural and environmental conditions

- Recommendations for policy makers based on the outcomes and conclusions of the project

### WUP INTERVENTION IN MAIN EP SOCIAL DETERMINANTS OF HEALTH<sup>3</sup>

LAYER 0	LAYER 1	LAYER 2	LAYER 3	LAYER 4
Due to the sociodemographic characteristics of the target population and/or the WUP focus, a special impact is expected on:	HEALTHY LIFESTYLES AND HABITS	ASSOCIATIVE NETWORK	UNEMPLOYMENT LEVEL	ENVIRONMENTAL AND WEATHER CONDITIONS
AGED POPULATION	ENERGY EFFICIENCY HABITS	KEY COMMUNITY ACTORS AND PROFESSIONALS	FINANCIAL SITUATION, INCLUDING DEBTS	CITY INFRASTRUCTURE (GREEN ZONES, BIKELANES...)
LARGE FAMILIES	MENTAL HEALTH AND ATTITUDE	UNWANTED LONELINESS/ SOCIAL ISOLATION	STRUCTURAL HOUSING CONDITIONS (INSULATION...)	SUPPORTIVE POLICIES AGAINST EP
SINGLE PARENTS			ENERGY EFFICIENCY MEASURES AT HOME	GENERAL PUBLIC AWARENESS
FAMILIES WITH NO CHILDREN			FORMAL EDUCATION LEVEL	ENERGY PRICES
ETHNIC MINORITIES			HEALTH CITY EQUIPMENT	

<sup>3</sup> The coloured areas represent the main categories of social determinants of health related to EP where the WUP will intervene. Only the ones with a direct link to the actions planned have been represented in order to outline the specificities of each pilot city.



## 4.2. Identification of the WUP

### - Title

Wellbased Urban Programme in the City of Jelgava

### - Period it covers

Pilot activities: 12 months (from August 2022/Jan. 2023 to July 2023/Dec. 2023)<sup>27</sup>

+ follow-up audit 6 months after the end of the project activities

### - Responsible authority

Jelgava Pasvaldības Operatīvas Infirmācijas Centrs (POIC) which is a local municipal institution and works in close relation with other municipal institutions and local authorities

### - Stakeholders and their responsibilities

- Department of Social Services (DSS) which will help to recruit local inhabitants as they are the first institution where people look for social support.
- Department of Real Estate (DRE) who manages real estates of the municipality and is responsible for social housing where part of the target group is living.
- Zemgale regional energy agency – nongovernmental institution working with energy efficiency and renewable energy issues and also educating people on these subjects

## 4.3. Thematic scope of the WUP

### 4.3.1. Social context of the City

Jelgava city is fourth biggest city in Latvia and had 60.564 inhabitants on 01/01/2021. According to data of Office of Citizenship and Migration Affairs of Latvia there were 62,7% of working age population in Jelgava (37 993), 17,6% - below working age (10 666), and 19,7% - above working age. (11 905). The demographic load is increasing gradually. Due to Covid-19 and following decrease of economic activities, after ten years of stable decrease of unemployment level, these data show increase in Jelgava and Latvia in general in 2020. Average unemployment level was 5% (2019 - 3,5%) in Jelgava in 2020.<sup>28</sup>

Lately, due to reduction of unemployment level, the increase of average remuneration could be observed in Jelgava, bordering regions and Latvia. In 2020 the average remuneration in Jelgava was 1091 euro – which

<sup>27</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)

<sup>28</sup> Public review of Jelgava City 2020





is 4,6% or 48 euro higher than in 2019, however it is lower than in other bigger cities Riga (capital), Valmiera, Liepaja, Ventspils, for this reason high qualified specialists living in Jelgava often look for job in Riga, where the average remuneration is the highest -1341 euro<sup>29</sup>.

#### **4.3.2. Energy poverty data**

According to EUROSTAT data<sup>30</sup> 8% of population in Latvia had problems to keep their houses adequately warm in 2019, however other international resources show that this number has been much higher<sup>31</sup>, the main reasons for this are: low income, low energy efficiency of housing, and inability of inhabitants to agree on energy efficiency measures in apartment houses. As a result, inhabitants face problems like arrears on utility bills, inadequately insulated houses, disproportionally housing expenditures and inability to keep houses adequately warm.

#### **4.3.3. Current policy to tackle Energy Poverty**

On 16.02.2021 with an amendment of Law on Energy<sup>32</sup> national definition was established on Energy Poverty, it defined two criteria according to which a household can be categorized as energy poor:

- it is recognized as a poor or low-income household and receives material support to cover the costs of housing;
- it rents a residential premises or a social apartment owned or leased by the local government in accordance with the Law "On Assistance in Resolving Housing Issues" or the Law "On Social Apartments and Social Housing".

This support is managed by local municipalities, analysing the official income of the household according to the criteria defined by local administration and the income level, which allows to qualify for the support is reviewed every few years. For 2021 in Jelgava city the definition was:

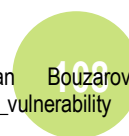
- poor (person) household - a household declared in the city of Jelgava is considered poor if its income does not exceed 272 euros for the first and only person and 190 euros for other persons in the household.

<sup>29</sup> Public review of Jelgava City 2020

<sup>30</sup> [https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc\\_mdcs01&lang=en](https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_mdcs01&lang=en)

<sup>31</sup> Energy Poverty in the European Union: landscapes of vulnerability, by Stefan Bouzarovski  
[https://www.researchgate.net/publication/259543840\\_Energy\\_poverty\\_in\\_the\\_European\\_Union\\_Landscapes\\_of\\_vulnerability](https://www.researchgate.net/publication/259543840_Energy_poverty_in_the_European_Union_Landscapes_of_vulnerability)

<sup>32</sup> <https://likumi.lv/ta/id/49833-energetikas-likums>





- low - income (person) household - a household in Jelgava City Municipality is considered to be low-income if its total material resources and level of material condition do not exceed 370 euros for the first and only person and 259 euros for other persons in the household<sup>33</sup>.

At national level and with the support of EU Structural funds, Ministry of Economics is providing possibility to improve the **energy efficiency in housing sector** for next planning period 2021-2027<sup>34</sup> with about 163,1 million euros, in the previous period 2014-2020 similar support was available giving opportunity to receive 50% subsidies for energy efficiency related construction costs<sup>35</sup>.

**Consumer protection** measures are also implemented at national level as of September 1, 2021, Cabinet Regulation No. 345 "Protected User Trade Service Regulations" has entered into force, which changes the procedure and amount of payment reduction or support payments for protected users. From 1<sup>st</sup> of November 2021 to 31<sup>st</sup> of December 2022, the following amounts of aid will apply<sup>36</sup>:

- large families (3 and more children) will receive support of 20 euros per month;
- persons with a group 1 disability, families caring for a disabled child under the age of 18 or poor and low-income persons will receive support in the amount of 15 euros per month.

At national level **consumer education** on energy efficiency is provided by biggest energy providers Latvenargo<sup>37</sup> (electricity and gas), Latvijas gaze<sup>38</sup> (gas supply), locally consumers are educated by project stakeholder Zemgale regional energy agency and company providing centralised heating services in Jelgava "Gren Jelgava", education activities are usually project based campaigns for wider public and later information is available for every consumer in companies web site.

#### 4.3.4. Integration in municipal action plans and other local projects

This WUP is not integrated in other plans at the moment, however it is complementary to other existing planning documents and documents at the development stage and based on approaches developed in these papers. In 2009, Jelgava City signed the EU Covenant of Mayors as one of the first municipalities in Latvia. The commitment included a reduction of CO2 emissions by at least (if compared to 2005-as a base year) 20% in terms of increasing energy efficiency and 20% of energy use by 20% by producing volumes

<sup>33</sup> <https://likumi.lv/ta/id/326407>

<sup>34</sup> <https://www.em.gov.lv/lv/es-fondu-atbalsts-2021-2027>

<sup>35</sup> [EU subsidies for energy efficiency](#)

<sup>36</sup> <https://likumi.lv/ta/id/323662-aizsargata-lietotaja-tirdzniecibas-pakalpojuma-noteikumi>

<sup>37</sup> <https://www.elektrum.lv/lv/majai/energoefektivitate/energoefektivitate/>

<sup>38</sup> <https://lg.lv/jaunumi/noderigi-padomi-ka-teret-mazak>

from renewable energy sources (20/20/20).<sup>39</sup> According to these liabilities Sustainable Energy and climate action plan for Jelgava city (2021-2030) was developed and approved by Jelgava city council in December 2020. This document also includes statements that Energy Poverty has to be reduced to energy consumers and educational activities must be performed regarding energy efficiency for houses and energy efficiency measures for everyday consumption.

## 4.4. Target population

### 4.4.1. Target population data collection and classification under the socio-ecological model

TARGET POPULATION OF YOUR WUP
<b>Population: socio demographic characteristics</b>
<p>Jelgava is the fourth largest city in Latvia by population and the fifth by the territory (the total area is 60,3 km<sup>2</sup>).</p> <p>The <b>total population</b> of Jelgava is 60,564 (in 2021); however, the population of Jelgava is declining. According to data of Office of Citizenship Migration Affairs, during the last 6 years (2016 – 2021), population has decreased by 1.7%. In 2020, 696 people were born and 1,007 people died, as a result the natural increase in the city was negative (-311 people). According to Central Statistical Bureau data <b>gender structure</b> of Jelgava population consists of 54% (30 085) women and 46% (25251) men and the structure have not significantly changed during the last 10 years.</p> <p>As mentioned below, according to the data of the Office of Citizenship Migration Affairs, at the beginning of 2021 there were 62.7% people of <b>working age</b> (37,993), 17.6% – under the working age (10,666), 19.7% – over the working age (11,905). The demographic burden – children and over working population – is growing as a result it can significantly affect potential for economic growth of the city and create an additional burden to working age population. The biggest proportion of inhabitants of Jelgava in 2021 was in the age group 30 – 39 years old (in total 8124 people: 4127 – men and 3997 – women), as shown in the Figure below.</p>

<sup>39</sup> [https://zrea.lv/upload/attach/Jelgavas\\_energetikas\\_un\\_klimata\\_plans.pdf](https://zrea.lv/upload/attach/Jelgavas_energetikas_un_klimata_plans.pdf)

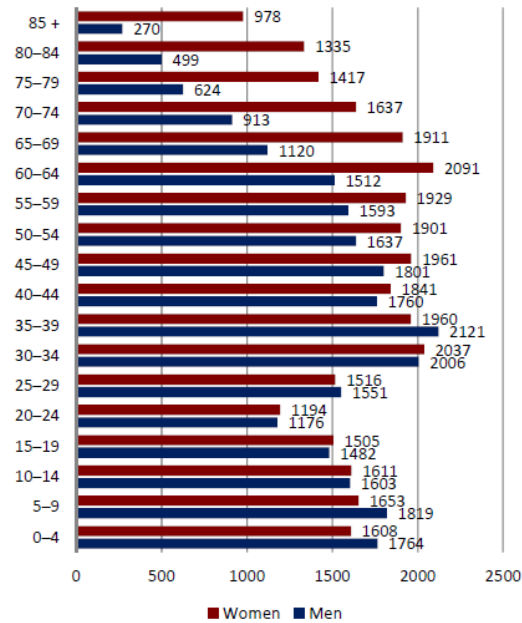


Figure 31. Jelgava population gender / age structure on January 1

Source: Central Statistical Bureau of Latvia, 2021

**Dependency ratio** in Jelgava is 632 (in 2021).

**Net migration rate** in 2020 was negative (-21) and during the previous years it stays negative (except in 2019) that can be explained by the fact that people move from the cities mainly to capital of Latvia (Riga) to work or study.

The **ethnic composition** of the population of Jelgava almost has not changed – the largest share is Latvians – 59.9%, Russians – 25.5%, Belarusians – 4.9% and Ukrainians – 2.5%. Number of Latvians each year slightly increases (at the beginning of 2021, compared to the beginning of 2020 – by 72 people).

As mentioned below, in recent years, as the unemployment rate has fallen, the **average monthly earnings** of workers have risen. In 2020 in Jelgava, it was 1091 euros – by 4.6% or 48 euros higher than in 2019, but lower than in Riga (capital city). Consequently, highly qualified specialists living in Jelgava are working in Riga, where the average salary is the highest among the cities – 1341 euro.

In 2020, the status of a **needy (poor) family** (person) was determined to 330 families (535 persons) in Jelgava while the status of a **low-income family** has been determined for 833 families; persons in families – 1093. The number of needy (poor) families and persons has been decreasing every year since 2015 and in 2020 reached the lowest number of poor people in recent years, which can be explained by wages growth and relatively low unemployment in the city.

In 2020, most of the municipality funding has been granted for the payment of apartment rent and utility payments (247 796 EUR) for poor families that is 37.28% of the total amount spent on benefits (in total for 863 families). Other most requested benefits were guaranteed minimums income (GMI) benefit (5.57% of total benefits), benefit for the payment of medical services (16.11% of the total amount of benefits) and housing benefit for individual heating (9.70% of the total amount of benefits). In total 1337 families and 1923 persons have received social benefits (664 733 EUR) from municipality.

### **AREAS/GROUPS ESPECIALLY VULNERABLE IN THE AREA OF INTERVENTION**

The most **vulnerable groups** in Jelgava are the long term-unemployed (>1 year), disabled people, pre-retirement unemployed, single-parent families, families with more than 3 children and pensioners (especially lonely pensioners). These groups can be found out by analysing information about received benefits from municipality. In 2020, the largest group of beneficiaries (vulnerable groups) were families without children and where there were no persons that are able to work (926 families; received 74.61% of the total amount of benefits). Families with children with one or more people able to work received 11.96% of the total amount of benefits (a total of 106 families) and families without children and one or more adults able to work were 105 – they received 10.26% of the total benefits.

In 2020, compared with 2019, the number of GMI benefit recipients and the amount of this benefit has increased. Compared to 2019, the amount of GMI benefit received has increased by 10,913 EUR or 29.46%, due to an increase in the GMI level from 53 to 64 million EUR per person. Families without children and one or more people able to work received 61.43% of the total GMI benefit. In this group mainly are families with long – term unemployed that can work.

Important part of Jelgava community are students (~4000 students in Latvia University of Life Sciences and Technologies).

### **Layer 1: Individual lifestyle factors**

#### **HEALTH AND SPORT**

**Healthy and non-healthy lifestyle.** In Jelgava, there is a specialised addiction clinic for inpatient treatment, however, mortality from alcohol poisoning is present in Jelgava (40 deaths in 2008-2016; 7.5 per 100 000 inhabitants) that is very high indicator between bigger cities in Latvia (data of Centre for Disease Prevention and Control, 2017). Unfortunately, statistics about alcohol, drugs consumption is collected only in country level (<https://statistika.spkc.gov.lv/pxweb/lv/Health/>); specific information about situation in cities is not summarized. However, the main reasons for mortality in Jelgava are diseases of the circulatory system (701.8 per 100 000 population) and neoplasms (288.7 per 100 000 population) in

2020. Mortality from external causes of death (e.g., suicide, traffic accidents, violence, smoke and fire exposure, falls, drowning, poisoning) in Jelgava is lower than in the country. Every year of external causes ~40 people die in Jelgava (relative figures per 100 000 inhabitants, 2018) The most important external causes of death are suicides, falls, traffic accidents and accidental poisoning.

**Physical activities.** In Jelgava there are opportunities to do sports at both professional and amateur level. Given the developed infrastructure and participants` number of sports clubs, the city is considered the development of Zemgale region sports centre. In general, the city of Jelgava has a suitable environment and infrastructure for a healthy lifestyle development:

- length of bicycle lanes: 26.9 km;
- parks: 1.62 km<sup>2</sup>;
- forests: 12.64 km<sup>2</sup>;
- Pasta island – 9 hectares of multifunctional recreation, culture, sports and the place of public activities;
- outdoor training places – in Oak Square, Rainis Park, Jelgava Evening (shift) secondary school territory and beach of Lielupe river;
- six open access basketball courts;
- 16 playgrounds, 9 of them are managed by the City.

The environment of the city of Jelgava is becoming more and more accessible also to people with disabilities.

**Assets / resources for health/wellbeing.** *In Jelgava, there are good infrastructure and green environment that motivate people to do different physical activities.*

## Layer 2: Social and community networks

According to ZL.lv data, in Jelgava there are 80 NGO's (associations) that operate in different fields – education, culture, sports, animal protection and provide support for vulnerable groups of people (e.g. people with physical disabilities and blind people). There are also associations that unit people with different interests (e.g., about beekeeping, motorsport, agriculture, economics etc.). Majority of associations are very active and are involved in a city life.

Unique is the fact that in Jelgava there are 7 associations that represent interests of different nationalities and ethnic groups (Jews, Lithuanians, Belarusians, Russians, Roma, Polish, and Ukrainians). Besides, there are 5 minority associations.

One of the biggest NGOs in Jelgava is Zemgale NGOs Centre that is the leading organization in field of NGO support in Zemgale region, serving services to more than 600 NGOs providing consultations, specific seminars and projects for non-profit sector support. It has a close cooperation with local municipalities in Latvia, organizing support measures for NGOs.

In order to promote community cohesion, NGOs organize different events; also, there are social entrepreneurship ambassadors in Jelgava, who are actively involved in promotion of social business idea.

Jelgava municipality every year gives financial support to NGO's, e.g., in 2020 they gave 292 795.03 EUR to 60 organisations (grant competition).

**Assets / resources for health/wellbeing.** *In Jelgava there is great diversity of different NGOs that are active in various fields. The unique point is associations for different minorities, ethnic groups and people with disabilities. Besides, Jelgava municipality every year gives financial support to NGOs as a result it can be seen as a resource for development.*

### Layer 3: Living and working conditions

#### WORKING CONDITIONS

**Entrepreneurship** in Jelgava covers the following sectors: manufacturing (dominant industries are metalworking, mechanical engineering, woodworking, food production, plastics processing), construction, transport and storage, car repair, wholesale, retail etc. In the last years, economic activity in manufacturing increased sharply, driven by the ability of entrepreneurs to increase competitiveness and demand dynamics in the largest export markets. In 2019, 4116 economically active enterprises operated in Jelgava (in 2018 – 4103), incl. 2433 sole proprietors and commercial companies (in 2018 – 2419). It can be concluded that there were 43 companies per 1000 capita. Number of commercial companies and sole proprietors per 1000 capita in Jelgava is increasing every year.

In 2020, 220 **new companies** were registered in Jelgava – it is ~ 20% less than in 2019. In turn, 215 companies were liquidated – it is ~ 53% less than in 2019. The decline on new enterprises was observed almost in all large cities of Latvia.

According to the data of State Revenue Service, in 2020 23 906 people **worked** in Jelgava. Compared with 2019, the number of employees in the city has decreased by 4.8% (-1193), which can be explained by the impact of the Covid-19 pandemic. The largest share of employees are inhabitants of Jelgava (52.3% of the total number of employees or 12 513 employees). Inhabitants from capital city, Riga (8.3%)

and the people of the surrounding counties (16.1% – Jelgava county; 5.2% – Ozolnieki county and 2.4% from Dobeles county) also work in Jelgava.

Many people are employed in **public sector** – approximately 42%; it is more than average in Latvia (~34%). It can be explained by the fact that the Latvia University of Life Science and Technologies and other educational institutions are the largest employers in Jelgava; moreover, regional administration institutions are situated in the city. Jelgava as working place seems to be attractive to many people from capital as well as people from other districts.

With the rapid spread of the coronavirus Covid-19 and the decline in economic activity, after the ten-year steady decline in the **unemployment rate** in Jelgava, in 2020 it has increased. The average unemployment rate in 2020 was 5% (3.5% in 2019) and 5.1% at the beginning of 2021, which is the third lowest unemployment rate between cities in Latvia. At the beginning of year 2021, there were 1738 residents of Jelgava registered with the State Employment Agency (957 – women and 781 – men). Besides, there can be divided some problem group unemployed persons as well – 240 long-term unemployed, 225 unemployed persons with disabilities, 145 – youth (15 – 24 years old) and 224 persons before retirement age. By analysing unemployed persons in terms of their age, it can be concluded that mainly unemployed are 30 – 34 years old (235 unemployed) and 55 – 59 years old (225), 35 – 39 years old (219). Mainly people stay without job for up to 6 months (999 persons that is 57% of all unemployment period) and 29% – from 6 to 12 months. Mainly unemployed are people with professional /vocational education (590 or 34% of all unemployed in Jelgava) and with secondary education (437 or 25% of all unemployed in Jelgava), see Figure 26.

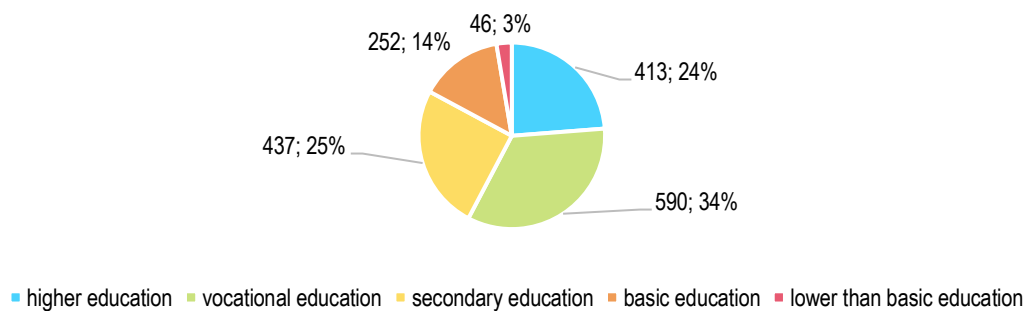


Figure 32. Number of registered unemployed by the level of education, %

Source: Central Statistical Bureau of Latvia, 2020

During the Covid-19 pandemic, the labour market is in turmoil, for many employees the number of working hours has significantly decreased, some have lost their jobs. It affects consumption, savings and living standards of people and has a direct impact on the income inequality gap.

## EDUCATION

**Population by educational level and gender.** The number of inhabitants with secondary education is very high (39.9%), although in Jelgava is located one of the biggest universities of Latvia. The positive aspect is that 1/3 of population have higher education.

**Population aged 15 and over by educational level in Jelgava, 2020**

Indicators	Number	%
No formal education, less than primary or primary education (ISCED levels 0 and 1)	1509	3.3
Lower secondary education (basic education) (ISCED level 2)	6805	15.0
Secondary education (ISCED level 3)	18120	39.9
Vocational education after general or professional secondary education; professional secondary education after general secondary education (not higher education) (ISCED level 4)	5314	11.7
Higher education (ISCED levels 5 to 8)	13648	30.1
<b>Total</b>	<b>45396</b>	<b>100.0</b>

*Figure 33. Population aged 15 and over by educational level in Jelgava*

*Source: Central Statistical Bureau of Latvia, 2020*

## HOUSING CONDITIONS

In Jelgava, multi-storey residential areas have developed historically, starting after World War I. As Jelgava was destroyed during World War II, the renovation of the buildings was concentrated in the central part, renovation of which lasted until the late eighties. The residential areas built during the Soviet times are very large, impersonal and of utilitarian type, the technology and construction quality is very low. Measures to improve the quality of the living environment must be implemented almost in all the areas, however, for each area there should be used different approach depending on the year of construction, type of the residential building, level of amenities, etc. factors.

Most of the residential buildings has been built in the time from 1960 to 1989 (79%). Up to 1948 – 4.63% of the residential fund has been built, from 1948 to 1959 – 11.74% of the total multi residential living fund. After 1989 – 4.63%.

In the late forties, the first quarter of the city central area was constructed with multi storey residential buildings. The buildings of those times were three to four storey brick masonry buildings with inter-floor coverings made of wood and asbestos sheet roofing. In the sixties, the construction of series-type multi floor residential buildings started in Jelgava. During this time, mostly five-storey residential buildings with small flats were built. In the seventies, considering that in the central part of the city, free land for building was running out, for residential construction new territories in the periphery part of the city were planned. At that time the housing policy has led to the situation when in several places of the city there are



unfinished residential blocks or groups of buildings, which fragment the building structure of the city, there are unreasonably long lines of utilities leading to those blocks, causing large energy losses.

Post-war buildings, which mostly were built by the standard solutions and since the mid 60s by use of construction methods of the pre-fabricated panels with a low thermal resistance, which were in line with the standard requirements of construction of those times as priority was low construction costs. These buildings are the key concern for the city, as it is necessary to improve the energy efficiency of the buildings and to reduce the energy consumption, meanwhile achieving the reduction of CO<sub>2</sub> emissions.

Jelgava housing maintenance company "JNĪP" Ltd and other house maintenance companies are carrying out energy efficiency measures to reduce heat losses in the apartment buildings. Energy efficient renovation of houses is carried out by improving the heat insulation of the external walls of the buildings. "JNĪP" as well as other house maintenance companies carry out changing of the windows with PVC windows in the staircases significantly reducing the heat losses from the shared facilities. Significant heat loss reduction is provided by the reconstruction of the heating systems of the buildings as well as improvement of the insulation of the internal piping and introduction of heating regulation devices. Implementation of these measures improve the energy efficiency of the district heating, reduce the energy consumption (fuel, electricity, water) as well as CO<sub>2</sub> emissions.

Most of the occupied dwelling in Jelgava is on average **41 years old**. 76% of the inhabited dwellings are located in three or more dwelling-residential buildings (multi-apartment houses), 24% - in individual houses.

Indicators	Conventional dwellings		Persons residing conventional dwellings
	Number	%	
Residential buildings	23 090	99.9	53 738
One-dwelling residential buildings	5 505	23.8	16 604
Two-dwelling-residential buildings	98	0.4	247
Three or more dwelling-residential buildings	17 487	75.7	36 887
Non-residential buildings	33	0.1	74
<b>Total</b>	<b>23 123</b>	<b>100</b>	<b>53 812</b>

Figure 34. Conventional dwellings and persons living in them in Jelgava

Source: Central Statistical Bureau of Latvia, 2021

\*one-dwelling residential buildings = private houses

one-dwelling residential buildings = semi-detached houses

three or more dwelling-residential buildings = multi-apartment houses

Type of building	Number	%
Dwellings in buildings, which were completed before 1919	688	2.9
Dwellings in buildings, which were completed in 1919 – 1945	970	4.2
Dwellings in buildings, which were completed in 1946 – 1960	2 352	10.2
Dwellings in buildings, which were completed in 1961 – 1980	11 866	51.3
Dwellings in buildings, which were completed in 1981 – 2000	6 186	26.8
Dwellings in buildings, which were completed in 2001 – 2010	805	3.5
Dwellings in buildings, which were completed in 2011 – 2015	96	0.4
Dwellings in buildings, which were completed after 2015	129	0.6
Not stated	31	0.1
<b>Total</b>	<b>23 123</b>	<b>100</b>

Figure 35. Conventional dwellings by type of building and by year of construction in Jelgava

Source: Central Statistical Bureau of Latvia, 2021

Facilities	Number	%
Flush toilet	22 111	95.6
Other type of toilet (no flush toilet)	886	3.8
Not stated type of toilet	126	0.5
Piped water	22 672	98.0
No piped water	378	1.6
Not stated type of water supply system	73	0.3
Fixed bath or shower	21 246	91.9
No fixed bath or shower	1 691	7.3
Not stated whether in the housing unit has fixed bath or shower	186	0.8
Central heating	20 710	89.6
Other type of heating (no central heating)	2 260	9.8
Not stated type of heating	153	0.7
<b>Total</b>	<b>23 123</b>	<b>100</b>

Figure 36. Conventional dwellings by facilities in Jelgava

Source: Central Statistical Bureau of Latvia, 2021

## CITY FACILITIES (HEALTH, EDUCATION, ETC)

**Health care.** In Jelgava there are 185 doctors (33.4 on 10 000 inhabitants) which is about average in Latvia. In Jelgava city hospital there are 256 beds and 10 890 patients admitted to Jelgava city hospital (in 2020). Besides, in Jelgava is located specialised addiction clinic for inpatient treatment.

**Education.** Jelgava municipality supports 30 educational establishments, including 11 public preschool educational establishments (in September 2020 there learnt 7300 pupils), 5 elementary schools, 6 secondary schools (of which 2 State gymnasiums), 3 professional education institutions (1 crafts school, 1 school of arts, 1 music school), 3 sports schools, Children and youth centre “Junda”. To promote life-long learning, Zemgale Region Human Resource and Competences Development Centre has been established. Moreover, there are several state and private educational establishments, including 10 privately owned preschool educational establishments. In addition, here is located one of the biggest universities of Latvia – Latvia University of Life Sciences and Technologies. Inhabitants of Jelgava have

plenty opportunities to learn and study. It can be seen also in educational level of inhabitants of Latvia – 1/3 part have higher education.

**Cultural and sport activities.** In 2020 there were organized 129 cultural events by Jelgava municipality (3 times less compared with previous years because of Covid-19 pandemic), however, there were 159 678 visitors of these events. In addition, there were organized 129 sports events and competitions. The cultural and sport life is very active; Jelgava regularly hosts different festivals and championships.

There are 56 sport organizations in Jelgava, which gives opportunities for different groups of people in different ages, genders and nationalities. By promoting a healthy lifestyle and rational use of free time, residents can engage in appropriate physical activities in various sports. The youngest sports enthusiasts can prove themselves in three sports schools of Jelgava municipality – Jelgava Children and Youth Sports School, Jelgava Specialized Swimming School and Jelgava Ice Sports School. The number of Jelgava residents involved in sports activities in 2020 was 4114 (in 2019 – 4034). Number of sports events organized with municipality funding and / or co - financing – 129 (In 2019 – 168). During the pandemic, the municipality organized sports challenges for the inhabitants of the city by using a variety of mobile applications, sports specialist-led seminars, online lectures etc. According to Sports Service Centre information in 2019 citizens of Jelgava were mainly involved in such activities of sport clubs – football (530), hockey, ice-skating (447), swimming (432), tennis (280), basketball 9260), judo and sambo (210).

**Library.** In Jelgava is located the biggest public library in Zemgale region that possesses a collection of 127 thousand items (sectorial, reference, fiction, periodical, audio-visual and electronic documents). Library receives approximately 200 visitors every day. Apart from traditional search options (catalogues, reference materials) one can also use electronic databases or use internet free of charge. Library serves as a consultations and methodical centre for 28 regional and municipal libraries in Jelgava district and is attended by inhabitants of neighbouring districts as well.

**Places of worship.** Taking into consideration the fact that in Jelgava live different minorities, there are cathedrals (orthodox, catholic, Lutheran) and 2 churches.

**Parks and green areas.** Jelgava is very green city, there are 6 parks, 2 squares and alleys.

**Overall satisfaction with living conditions in Jelgava.** According to survey “Quality of Life in Cities”, which was conducted by Central Statistical Bureau of Latvia in 2017 overall satisfaction level with living in Jelgava is relatively high because 95.2% of all respondents answered that they were very satisfied or rather **satisfied with life in the city**. Differences were found among different respondent groups and

their satisfaction level. For instance, young people were considerably less satisfied with living in Jelgava than people above 30 and 65. Although it was observed that respondent's **educational level** have influenced satisfaction – the higher was educational level of respondents the more satisfied they were with the life in Jelgava – however this correlation was found only up to secondary educational level while opinion of people with higher education became slightly more critical (Feldmane, 2018). Correlation was discovered also among several indicators that characterized the **household's living standard** and **financial situation** – the worse was situation in the household the lower was satisfaction level with life in Jelgava. For example, among unemployed respondents and students as well as those who evaluated their financial situation as unsatisfactory were less satisfied persons than among employed and financially satisfied respondents. In addition, **household's description and number of persons in household**, what also could be linked with person's overall happiness and financial situation, approved that the more persons shared one dwelling, the less were income per capita as a result. Also, satisfaction level with life and living in the city was lower (Feldmane, 2018).

	Indicators	Satisfied, %	Unsatisfied, %	No opinion, %
Age	14-29	88	10	2
	30-64	96	3	1
	65+	97	2	1
Education	Higher education	95	4	2
	Academic secondary education / vocational secondary education	97	2	1
	Basic education	91	9	0
	Primary education	50	50	0
	No education	100	0	0
Household description	Single person	96	2	1
	Married with children	95	4	1
	Single parent	90	10	0
	Married with children	97	3	0
	Other	92	6	2
Respondent occupation	Workers	96	3	1
	Not working	90	8	3
	Student	86	14	0
	Retired person	97	2	1
Household composition: number of persons	1	96	2	1
	2	96	4	1
	3	96	4	1
	4	95	3	1
	5+	80	6	1
Financial situation of household	Satisfied	99	1	0
	Unsatisfied	91	8	1
	No answer	78	0	22

Figure 37. Overall satisfaction with living in Jelgava, %

Source: Feldmane, 2018

Also, in survey it was found out that residents of Jelgava were the most satisfied with availability of **retail shops and green spaces**, following **cleanliness, air quality and the noise level, cultural facilities**, instead the lowest satisfaction level was with the state of **streets and buildings, public transport, lack**

**of job opportunities and health care services.** People were mainly satisfied with environmental factors, which means that Jelgava provides good, environmentally friendly living residence, while public services are in worse situation. In comparison with the other biggest cities of Latvia, in Jelgava was the lowest satisfaction level with public transport. In Jelgava, there was observed also **second lowest satisfaction level with the state of the streets and building.**

Although satisfaction with healthcare services in Jelgava was only 62%, compared with other cities it was the second highest result. Jelgava stood out in comparison with other cities also with **educational facilities:** there were 75% satisfied respondents in the city.

In survey respondents were asked to mention the 3 most important issues in Jelgava, and results show that the main issue detected was **road infrastructure**, which had been mentioned by 62% of respondents; and this issue was more important for residents who lived in the city for 5 – 10 years, those who were born there and young and financially satisfied persons who likely were the owners of private vehicles and could evaluate the road infrastructure better. On the second place was **unemployment** (52% of respondents had pointed it out). Among them, more often were those respondents who lived in the city relatively shorter time, young people and people who were not satisfied with households' financial situation. **Health care** was the third most often mentioned issue as almost every second respondent had mentioned it, and it was a topical problem for older persons over 65 and financially unsatisfied individuals. Other issues such as social services, public transport, housing and safety were mentioned relatively less often, while noise, education, training, and air pollution worried only 6 – 7% of respondents. As shown in the Figure below, a comparison of respondents' answers related to financial situation of household indicates that:

- (i) persons who were not financially satisfied had often mentioned issues connected with persons' social well-being, for instance unemployment, health services, social services, housing;
- (ii) financially satisfied persons had more often pointed out road infrastructure, safety, education and training as well as air pollution.

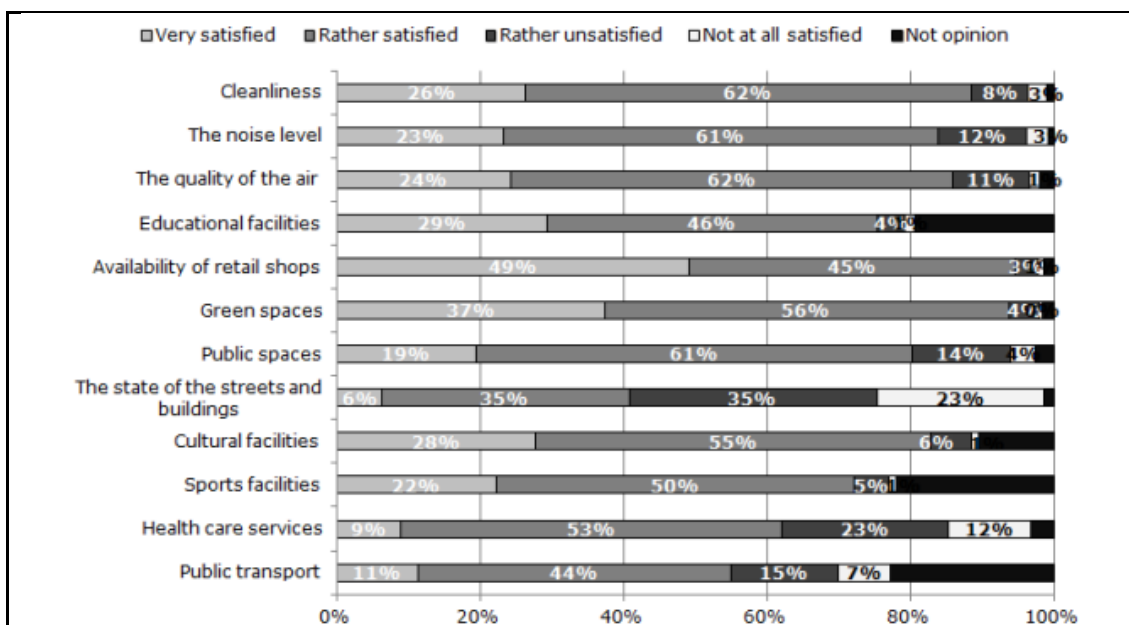


Figure 38. Satisfaction with infrastructure, facilities and environment of Jelgava, %

Source: Feldmane, 2018

Also, respondents' age influenced persons' opinion about most common issues, and while young people more often than the rest age groups had mentioned problems that were important for them, such as road infrastructure, unemployment, public transport, housing and education, people after 65, in turn, more often had pointed out health services and social services. At last correlation was found also among respondent groups with different duration in the city: persons who had relocated their residence relatively recently were more worried about unemployment compared to other groups; those who lived in Jelgava 5 – 10 years more often than others had mentioned public transport, housing and education (most likely these were young families with children to whom preschool education was topical issue); respondents who had born in the city were worried about road infrastructure, unemployment and health services.

It can be concluded that people firstly point out issues that are common with their subjective experience and what bother their individual life; thereby personal experience, wellbeing and satisfaction have a great impact on overall satisfaction with living environment (Feldmane, 2018).

**Assets / resources for health/wellbeing.** In Jelgava there are many enterprises that provide working places for inhabitants of Jelgava and can be seen as resource for development. Jelgava housing maintenance company "JNIP" Ltd and other house maintenance companies is an important asset in carrying out energy efficiency measures to reduce heat losses in the apartment buildings. Health care, sport and educational organizations are important resource for development of wellbeing in Jelgava.

#### Layer 4: General socio-economic, cultural and environmental conditions

##### CLIMATE CONDITONS IN THE CITY OF JELGAVA

In Jelgava, the summers are comfortable and partly cloudy, and the winters are long, freezing, snowy, windy, and mostly cloudy. Over the course of the year, the temperature typically varies from -6°C to 23°C and is rarely below -17°C or above 28°C. The warm season lasts for 3.5 months, from May 22 to September 7, with an average daily high temperature above 64°F. The hottest month of the year in Jelgava is July, with an average high of 22°C and low of 13°C. The cold season lasts for 3.9 months, from November 19 to March 14, with an average daily high temperature below 3°C. The coldest month of the year in Jelgava is January, with an average low of -6°C and high of -1°C (weatherspark.com). Taking into account climate conditions heat supply is a particularly important energy area as more than 60% of the energy spent in the country is used for heating. The normative degree days of the district heating season of Jelgava comprises 3654 degree days. Taking into consideration that in Jelgava heating season is not started for all the buildings at the same time, for the calculation purposes heating days are assumed as 203 days, while the average air temperature is assumed according to the real temperature in the heating season. In Jelgava the heat supply of residential houses, public buildings and industrial premises is provided by Jelgava city centralised heating system company “Gren” or local heating sources, which have been constructed to provide heat for a separate house or group of houses.

Unlike temperature, which typically varies significantly between night and day, dew point tends to change more slowly, so while the temperature may drop at night, a muggy day is typically followed by a muggy night. The perceived humidity level in Jelgava, as measured by the percentage of time in which the humidity comfort level is muggy, oppressive, or miserable, does not vary significantly over the course of the year, staying within 2% of 2% throughout (weatherspark.com).

##### SOCIO ECONOMIC DEVELOPMENT IN THE AREA

**Policies.** The growth of Jelgava city is based on several spatial development planning documents: Jelgava city spatial planning for the period from 2009 – 2021, and long-term document implementation documents for medium-term development programs.

**Sustainable energy and climate action plan 2021 – 2030.** The main aim is to reduce greenhouse gas emissions by 40% by 2030 compared with the base year 2005, and adapt to ongoing climate change.

Secondary aims:

- to increase energy efficiency in all sectors;

- by 2030 promote that Jelgava produces at least as much energy as it consumes (it can be done by using central heating, increasing energy production from renewable sources, using heat as a by-product from industry, etc.);
- to increase the share of zero-emission vehicles by 2030; promote public transport use and cycling;
- to reduce the vulnerability of people's lives, health and well-being to climate change impacts.

**Health promotion program for the city of Jelgava 2016 – 2022.** The vision: Jelgava – a city whose inhabitants care about their own health and the health of their loved ones. Jelgava resident is informed and educated about the importance of health determinants and make responsible decisions about their own and their family's health. Jelgava has a high quality and health-promoting living, working and leisure space for the city's residents and those guests.

To reach this, it is planned to regularly involve inhabitants in regular physical activities, to promote healthy nutritional use, to provide addiction and illness prevention and mental health promotion. It is planned to provide safe and healthy environmental development in the city.

**Cities of Jelgava development strategy of culture 2021 – 2027.** The aims included in the strategy:

- to develop the city of Jelgava as a cultural Centre of Zemgale region and Latvia with a cultural environment open to innovation, where the traditional and the alternative develop together complementary;
- to provide the city's inhabitants with diverse culture and creativity opportunities for participation that develop a sense of belonging to the place of residence and at the same time promote the growth of Jelgava as a smart city;
- to reveal Jelgava as an original place to the residents of the region, Latvia and abroad, for professional, qualitative cultural events;
- activate the preservation of the unique cultural and natural heritage, and promotion practices integrated into the city's cultural tourism offer.

**Assets / resources for health/wellbeing.** Strategic planning documents can be considered as important asset / based on which plan health and wellbeing development.



#### 4.4.2. Target population data analysis and conclusions

Target population can be described / set by several criteria: 1) income level; 2) benefits from municipality (if they receive); 3) living place (type of building, space, type of heating system etc.); 4) number of family members (lonely pensioners, families with children).

According to this information the most vulnerable groups in Jelgava are long term-unemployed (>1 year), disabled people, pre-retirement unemployed, single-parent families, families with more children and pensioners (especially lonely pensioners).

##### a. Needs and Assets of the target population

#### NEEDS/ WEAKNESSES (to be minimized through the WUP)

Important factor that affects target population and its wellbeing is **level of income**. Although average monthly earnings of workers in Jelgava have risen the last years (in 2020 average salary in Jelgava was 1091 euros) but it is still lower than in capital Riga. Besides, there are a lot of needy (poor) family and persons (330 families and 535 persons in 2020) as well as low-income families (833 families; persons in families – 1093). According to focus group results, if there are more children in family it becomes harder to provide high living standards and to pay all bills (electricity, heating etc.). Also, if somebody have health problems and person needs medical treatment and cannot work, it is harder to survive financially. It means that health issues affect wellbeing as well.

One of the most important factors that affects wellbeing is **housing conditions**. Scientific research shows that satisfaction level with buildings in Jelgava is low. Majority of buildings are built in Soviet Union times; many buildings are ~ 41 years old. These are standard multi storey residential buildings with a low thermal resistance and creates large energy losses. Energy efficient renovation of houses is carried out by improving the heat insulation of the external walls of the buildings, insulating basements and roofs, however, there are still a lot of houses in Jelgava that are not renovated. In majority of houses (almost 90%) there is central heating system but there are a lot of houses where are no heating regulation devices. From one side heating regulation devices can be seen as good solution for energy saving but from the other side focus group results show that people sometimes heat only one room (instead of all the apartment; to save their costs) and as a result it creates mold and other problems with house. Also, energy savings are affected by quality of windows and roof.

Quality of buildings affects not only energy consumption but also relationships with other people. Focus group results show that if people live in poor situation, they don't want to invite other people to visit them



because they feel shame. It can affect many children in such families, their ability to socialize, leading to social isolation, etc.

Heating and quality of building is an important factor because of the **weather**. Winters are long, freezing, snowy and windy. The cold season lasts for 3.9 months, with an average daily high temperature below - 3°C. Considering climate conditions heat supply is a particularly important energy area as more than 60% of the energy spent in the country is used for heating.

Focus group results show that quality of **household appliances** affects consumption of electricity. People who have low incomes usually cannot afford new household appliances that potentially can save energy.

Significant factor is **habits and behaviour of inhabitants**. People who have low incomes adapt /change their habits, e.g., they don't iron clothes so often, pay attention to switching off the lights in the rooms, wash clothes by hands etc. However, it is easier to do for single families and pensioners. If there are more family members (especially children), it is harder to follow these requirements. In families where are children the consumption of electricity, water etc. resources increase significantly. However, these are basic needs that should be provided.

### **ASSETS FOR HEALTH AND WELLBEING (to be promoted through the WUP)**

In Jelgava there is well developed **entrepreneurship** in different sectors: manufacturing, construction, transport and storage, car repair, wholesale, retail etc. It means inhabitants of Jelgava have relatively good job opportunities. Besides, not only in private sector but also in public sector (there work ~ 42%) – in administration institutions of Jelgava, schools, hospital, university etc. It explains the relatively low unemployment rate in city (5%).

One of the strong points is **support from Jelgava municipality** to vulnerable groups of people. Municipality covers apartment rent and utility payments for poor families, pays guaranteed minimums income (GMI) benefit, benefit for the payment of medical services and housing benefit for individual heating. Also, municipality is planning the development of city in various fields (there are several policy documents that proves the fact that municipality is thinking about development of city and wellbeing of its inhabitants).

Inhabitants of Jelgava have plenty opportunities to learn and study. It can be seen also in **educational level of inhabitants** of Jelgava – 1/3 part have higher education. It can be important asset in educating people about energy safety issues. Also, there are educational, health care and sport organizations that are important resource for disseminating information about different ways how to decrease consumption of electricity, water, energy etc. in households.



NGO sector is developed in Jelgava, it allows people to form interest groups and communicate with persons with similar interests/problems, thus reducing social exclusion. Also, some groups historically have developed better social network to influence local politicians and have experience of cooperating with municipality.

There is political support to health care from local municipality which is defined in **Health promotion program for the city of Jelgava 2016 – 2022**, local inhabitants are encouraged to be active and participate in different kinds of sports activities both for children and adults.

**b. Causes for Energy Poverty in the pilot area and effects on health. Why our target population ends up with Energy Poverty?**

Main reason for Energy Poverty is the difference between the income (salaries, benefits) and actual expenses for energy (electricity, heating). In many cases people do not have possibility to significantly influence the consumption of energy without high starting investments (change of windows, repair of heating system to use thermoregulation devices, change of heating system provider etc.).

The pathway or process that explains how people end up with Energy Poverty in all pilots can be summarised at the figure below. It also shows the effects of Energy Poverty in mental and physical health of people, some of them measured during the project for the research evaluation. The orange-coloured boxes are the areas where this specific WUP will intervene through its different actions, minimising needs and maximising assets of these fields. Please note that the outline of some boxes has also been coloured based on its corresponding layer in the social ecological model (see figure legend). Green boxes contain the measurements that all pilots will take during the project for evaluation purposes.

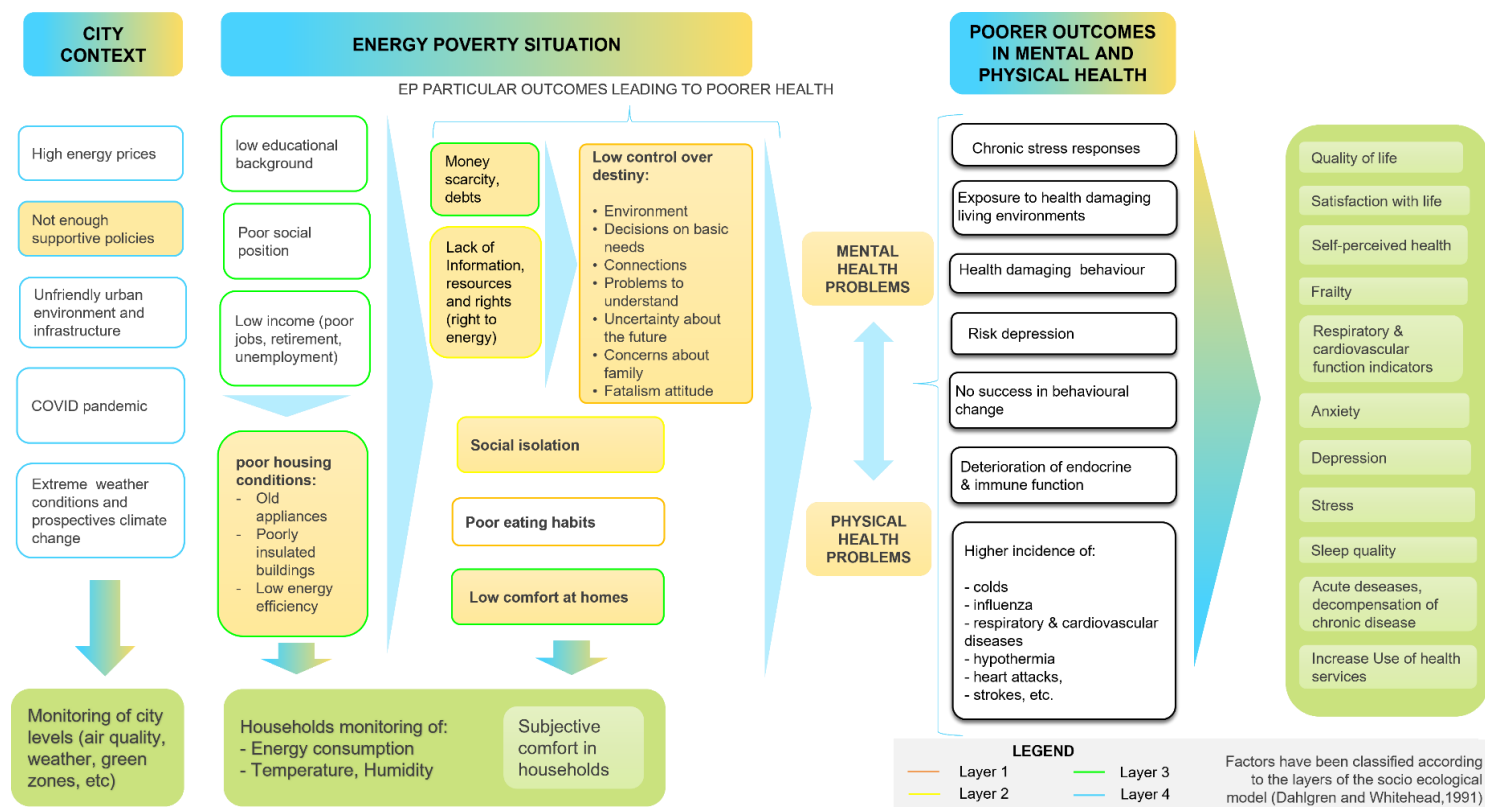


Figure 39. Jelgava pilot's pathway of Energy Poverty causes and effects in health.

## 4.5. Objectives of the WUP

### 4.5.1. Objective of the WUP

The objective of the WUP of Jelgava is to define and test different intervention activities targeted to energy poor families and individuals, to establish potential support measures which can be presented at political level for further development of social support targeted to those in need. Following intervention measures are planned: educational activities, household energy audit, provision of energy efficient light bulbs for households.

### 4.5.2. Tomorrow's newspaper

To help envisioning the impact of the WUP, here below is an imaginary news in a fictitious newspaper talking about our project results in five years from now.

## My energy costs have decreased

January 2027

*Ms Emily Skuja shared her experience from participation in activities in project WELLBASED. Ms Emily Skuja is a pensioner living in a multi-storeyed building built in late 1980. She explains that she was approached by representative of local NGO for participation and at the beginning she was quite sceptical. However, she was interested to monitor more closely her health status changes and this was a motivation to her. She was provided with health monitoring devices and was asked to follow also her energy expenditure. She participated in four interviews, collected and reported health and energy data to municipality, had a possibility to participate in a training about how to reduce energy costs. "Results of energy audit were not a surprise for me, as I knew that the heat loss is high due to old windows, however I made some calculations and agreed that my children can help with the costs of changing windows and last winter my flat was more comfortable to live in" she stated. She also mentioned that due to the change of windows she did not feel so cold at home and therefore she no longer needed the additional electrical heating used in previous years.*



### 4.6. Overview of actions

The following actions will be performed during the pilot project (detailed in 4.8.):

LIST OF WUP MAIN ACTIONS	
<b>Layer 1: Individual lifestyle factors</b>	
	<ol style="list-style-type: none"><li>1. Training to energy vulnerable people</li><li>2. Energy audits</li><li>3. Develop educational materials</li></ol>
<b>Layer 2: Social and community networks</b>	



- |   |
|---|
| 4. Collective advice support to local NGOs representing vulnerable groups (retired persons, single parent families, large families etc) |
|---|

<b>Layer 3: Living and working conditions</b>
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- |   |
|---|
| 5. Energy Efficiency Toolkit with light bulbs |
|---|

<b>Layer 4: General socio-economic, cultural and environmental conditions</b>
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- |   |
|---|
| 6. Recommendations for policy makers based on the outcomes and conclusions of the project |
|---|

## 4.7. Impact indicators

### 4.7.1. General impact indicators

The table below shows information about how the pilot will collect the general impact indicators established for the project.

Variable	Instrument/indicator	Data Source	Data collection
Sociodemographic details: age, sex, gender, occupation, etc.	Ad-hoc questionnaire	Online* questionnaire for data collection	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ...
Health and wellbeing measures			
Quality of Life	Quality of Life (HRQoL)	Online version of the clinical standardised questionnaires	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ...
Satisfaction with life	Satisfaction with Life Scale (SWL)		
Mental health: Depression	Depression and Anxiety Stress Scales (DASS/BSI)		
Mental health: Anxiety			
Mental health: Stress			
Self-perceived health	SF-12 Health Survey (SF12)		
Frailty	Self Perceived Multidimensional Impairment Index (SELFY-MPI)	Online version of the clinical standardised questionnaire	
Subjective comfort in households	Self-reported scale <sup>40</sup>		
Respiratory & cardiovascular function indicators	Peak flow measurement	IoT Home health control devices, real time monitoring	<input checked="" type="checkbox"/> Manual collection  e) <input checked="" type="checkbox"/> Directly by participants f) <input type="checkbox"/> By another stakeholder  <input type="checkbox"/> Collection through wearables devices  <input type="checkbox"/> Other: ...
	SpO2 measurement		
	Blood pressure measurement		
	Sleep quality measurement		
Incidence of the acute diseases	Number of Diagnosed acute diseases	Electronic Health Records direct	<input type="checkbox"/> Direct extraction

<sup>40</sup> Frontczak, M., Andersen, R. V., & Wargocki, P. (2012).



Decompensation of chronic disease	Number of diagnosed exacerbations, all health settings (Emergencies, acute units, hospitalisation, primary care)	extraction and/or online questionnaire	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ...
Readmissions	Admissions in the ED (emergency department), acute units or regular hospitalisation		
Use of primary attention services	Visits to the primary attention services distinct from those aimed at renewing the prescriptions		
Life experienced	Impressions, comments, experience and subjective perceptions captured in focus groups and interviews & codified	Qualitative analysis codified records	Partner responsible (UNIVLEEDS) will provide the methodology and keep the data collected
<b>Energy efficiency evaluation</b>			
Energy consumption	Yearly Kw/day	Energy providers (DSOs) App	Information provided by participants
Household income spent on energy	% of income/Euros	Online questionnaires	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ...
Household conditions: temperature	Celsius Degree	IoT DT home sensors, real time monitoring	Definition in progress. To be detailed in D3.1
Household conditions: humidity	% Relative humidity		
Household conditions: air quality	CO2 and CO concentration		
City pollution	CO1, CH4, N2O, PM	SmartCity Open platforms (city-level/local data) Secondary sources (city reports, etc.)	Definition in progress
City air quality	CO1, CH4, N2O, PM, soot & smoke (wildfires, urban fire), specific gases, dust, etc.		
City weather	Rain rays per year, Floods reported per year, Extreme heat days (>30°C) per year, Days below >5°C per year,		





	Average temperatures, per season		
City climate	Comparison between these measures and the 10-previous-year reports and the 25-previous-year reports		
City green spaces	Green spaces (m2) per km2 Existence, localisation and length of <i>urban heat islands</i> Trees and parks or any other green space (m2) in <i>urban heat islands</i> (km2), if any		

#### 4.7.2. Pilot Specific indicators

No specific pilot Impact indicators are planned.

## 4.8. WUP Detailed planification

ACTIONS OF WUP	
Title (and number) of the action	
<b>ACTION 1.</b> Training to energy vulnerable people	
Description	
<p>3 workshops for intervention group.</p> <p>2 general events for citizens on general project activities, reduction of energy consumption, eligibility conditions in the Project etc.</p> <p>Training will be provided also by disseminating information materials to control group and information will be disseminated by persons performing interviews (booklets), on internet and through Stakeholders. It will summarize energy efficiency advice provided by general energy suppliers and supplemented by Stake holders</p>	
Outcomes of the action	
People informed on Project activities, People informed on different energy efficiency measures and using the most appropriate ones in their everyday life.	
Stakeholders involved	Period it covers (develop it on the next chart)
<p>Zemgale Regional Development agency</p> <p>Social support service</p> <p>Jelgava Real estate management administration</p>	September 2022 -January 2023
Budget and resources (from Wellbased project or from other sources)	
Wellbased, 6000 euros	



ACTIONS OF WUP	
Title (and number) of the action	
ACTION 2. Energy audits	
Description	
Energy audits will be provided by experts using adopted methodology for household energy audits, people Will be advised on most appropriate activities to be taken to reduce energy consumption.	
Outcomes of the action	
People are informed on most appropriate activities to be taken to reduce energy consumption.	
Stakeholders involved	Period it covers (develop it on the next chart)
Zemgale Regional Development agency	September 2022 -February 2023
Budget and resources (from Wellbased project or from other sources)	
Wellbased, 12 500 euros	



ACTIONS OF WUP	
Title (and number) of the action	
<b>ACTION 3.</b> Development of educational materials	
Description	
Educational materials will be developed by Project staff and Stakeholders to educate people on energy efficiency measures	
Outcomes of the action	
Educational materials developed and printed for dissemination among interence group.	
Stakeholders involved	Period it covers (develop it on the next chart)
Zemgale Regional Development agency	September 2022 -February 2023
Budget and resources (from Wellbased project or from other sources)	
Wellbased, 3000 euros	



ACTIONS OF WUP	
Title (and number) of the action	
<b>ACTION 4.</b> Collective advice support to local NGOs representing vulnerable groups	
Description	
There are about 80 NGOs established in Jelgava – some of them are representing also vulnerable groups. It is planned to participate in events organised by these NGOs to spread information and educate participants and especially the leaders of NGOs on energy efficiency measures in everyday life.	
Outcomes of the action	
Leaders and participants of different NGOs informed on energy efficiency measures in everyday life.	
Stakeholders involved	Period it covers (develop it on the next chart)
ZREA, JPOIC	September 2022 and August 2023
Budget and resources (from Wellbased project or from other sources)	
WELLBASED, 2000 euros	



ACTIONS OF WUP	
Title (and number) of the action	
<b>ACTION 5.</b> Energy Efficiency Toolkit with light bulbs	
Description	
Energy Efficiency Toolkit with light bulbs will be prepared and issued to intervention group providing them with possibility to reduce energy consumption in household	
Outcomes of the action	
Energy Efficiency Toolkit with light bulbs issued to intervention group providing them with possibility to reduce energy consumption in household	
Stakeholders involved	Period it covers (develop it on the next chart)
JPOIC	October 2022 -August 2023
Budget and resources (from Wellbased project or from other sources)	
Wellbased, 12 500 euros	



ACTIONS OF WUP	
Title (and number) of the action	
<b>ACTION 6.</b> Recommendations for policy makers	
Description	
Recommendations developed based on Pilot results on best intervention measures for Energy Poverty reduction and correlation of Energy Poverty to health status.	
Outcomes of the action	
Recommendations developed and presented to local municipality on intervention measures for Energy Poverty reduction and correlation of Energy Poverty to health status	
Stakeholders involved	Period it covers (develop it on the next chart)
Social Support Service, Zemgale Regional energy agency	October 2023 – January 2024
Budget and resources (from Wellbased project or from other sources)	
WELLBASED, 1000 euros	



Table 18. Timeline of WUP actions (Jelgava)

	Aug. 22	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	May. 2023	Jun. 2023	Jul. 2023	Aug. 2023	Sep. 2023	Oct. 2023	Nov. 2023	Dec. 2023	Jan. 2024
<b>Layer 1 - Individual lifestyle factors</b>																		
ACTION 1. Training to energy vulnerable people																		
ACTION 2. Energy audits																		
ACTION 3. Educational materials																		
ACTION 4. Energy Efficiency Toolkit with light bulbs and intervention in one educational institution																		





	Aug. 22	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	May. 2023	Jun. 2023	Jul. 2023	Aug. 2023	Sep. 2023	Oct. 2023	Nov. 2023	Dec. 2023	Jan. 2024
<b>Layer 2 - Social and community networks</b>																		
ACTION 5. Collective advice support to local NGOs representing vulnerable groups																		
<b>Layer 4 - General socio-economic, cultural and environmental conditions</b>																		
ACTION 6. Recommendations for policymakers																		

# Chapter 5: Leeds (United Kingdom)

## 5.1. Overview of the WUP (Leeds, United Kingdom)



URBAN PROGRAM

PILOTSITE  
**LEEDS**  
(United Kingdom)

**PERIOD** Pilot activities: 13 months  
(AUG 2022 to AUG 2023) - preliminary dates  
+ follow-up audit 6 months after the end  
of the project activities

**RESPONSIBLE  
AUTHORITY** Leeds City Council (LCC)

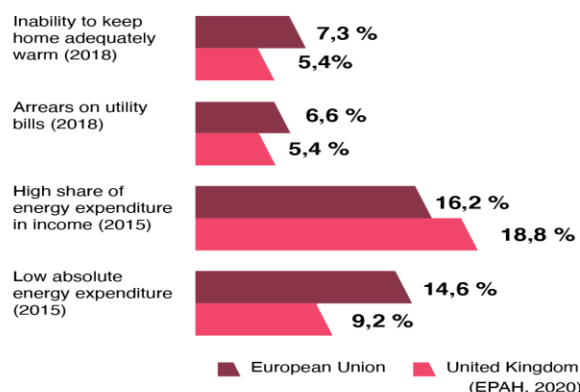
**OTHER KEY  
STAKEHOLDERS** **Leeds University:** monitoring (UNIVLEEDS)  
**Private Sector Construction Company:** energy efficiency improvement works  
**Public Health Leeds:** support in health issues  
**The Urban Local Alliance (Green Doctors and Linking Leeds):** taking participants' referrals

THEMATIC SCOPE

### UNITED KINGDOM: ENERGY POVERTY COUNTRY DATA

- 10.9% households estimated in EP in 2017 (LIHC indicator)
- Higher performance than the EU average on the population-reported indicators

#### Performance relative to EU average



### LEEDS: SOCIAL CONTEXT OF THE CITY

- Total population: 790.000 (2019)
  - Large number of people aged 20-29 in the city (thriving university sector)
  - 12.5% ethnic minority population
  - Unemployment rate: 4,3% (2020)
  - Considerable gap between rich and poor neighbourhoods, with 24% among the most deprived 10% in the UK
  - 24% of kids in low-income families
  - 54k households renting from LCC
- Energy poverty and housing local conditions**
- 10,3% min. energy poor using LIHC measure
  - Old terraced housing, and 1960s high rise housing poorly insulated
  - Older housing characterised by long rows of terraced housing, including a 'back-to-back' design (where one house backs onto the other)
  - Big rise in gas and electricity bills this winter 2021-2022

### NATIONAL CURRENT POLICY TO TACKLE ENERGY POVERTY

- National policy on energy poverty was formulated in the UK Fuel Poverty Strategy in 2001
- Official National Definition of Energy Poverty
- Energy Company Obligation: 500,000 insulation measures taken per year since scheme inception (from 2013)
- Decent Homes Programme: Over million social homes improved in first 10 years
- Winter Fuel payment, Cold weather payment and Warm Home discount
- Energy price cap (January 2019)
- Minimum Energy Efficiency Standards (2018)
- Other regional policies

### INTEGRATION IN MUNICIPAL ACTION PLANS AND OTHER LOCAL PROJECTS

- Affordable Warmth Strategy 2017-2030 of Leeds City Council's (LCC) for combatting EP
- Programme of works by LCC to insulate homes (more ambitious than UK target)
- Better Homes Yorkshire – using private sector 'ECO' funding for home insulation
- Heating upgrades
- Energy efficiency advice (Green Doctors)
- Switching energy supplier support
- A few district heating schemes
- Grants related to COVID to support EP
- Total Heat – council borrows money to install central heating, and tenant pays back the cost of this through bills
- Climate change strategy includes increasing the energy efficiency of council-owned housing by 2025

### TARGET POPULATION

<b>INTERVENTION AREA</b>	Geographical location in Leeds still to be defined	<b>TOTAL POPULATION</b>	Participants chosen among 54.000 households renting from the Council
<b>VULNERABLE POPULATION</b>	People living in social housing managed by LCC. Criteria for allocation are based on four key categories: homelessness; medical; housing condition; and general, which can include issues such as overcrowding, children, or hardship. Also, WUP will focus only on people living in high rise blocks under energy efficiency band D or below		
<b>NUMBER OF WUP PARTICIPANTS</b>	125 for intervention group (+ 125 for control group) in tower blocks of 40 apartments		

### MAIN EP SOCIAL DETERMINANTS OF HEALTH IN 'WUP TARGET POPULATION'

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#### MUNICIPALITY COMMITMENT

- ☺ National and local government very committed to EP fight (Affordable Warmth Strategy)
- ☺ Previous interventions and pilots in the area

#### ENERGY PRICES

- ☹ Energy prices rising at a very fast rate across the UK

- ☹ Leeds households subject to the UK energy market, without any special support

#### WEATHER AND AIR CONDITIONS

- ☹ Winters relatively long, cold and cloudy
- ☺ Not very extreme temperatures (rarely below -3°C or above 25°C)



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#### WORKING CONDITIONS

- ☹ Low income level
- ☹ 25% of main tenants unemployed

#### HOUSING CONDITION

- ☹ Tower blocks with efficiency band D or below
- ☹ Only 44% of tenants living in high-rise blocks are happy with the heating and insulation (less than across other property types)

- ☺ 73% of tenants living in high-rise blocks are satisfied with the service they receive from the council (their landlord)

#### EDUCATION

- ☹ Slightly less school performance compared to England levels (primary school and GCSE levels)

#### OTHER LIVING CONDITIONS

- ☹ Medium satisfaction with life (6,6/10)
- ☹ 22% of tenants living in high-rise blocks describe their financial position as either 'fairly' or 'very' difficult
- ☹ 68% of tenants living in high-rise blocks have access to the internet at home

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*To be further determined once the block of intervention will be selected (through Tenant Engagement Officer, tenants' groups, local community, faith groups and social media sites connected with the local area)*

#### UNHEALTHY / HEALTHY LIFESTYLES AND HABITS

- ☹ 26% of council tenants are disabled or impaired
- ☹ Worse health expected than average population and more affected by COVID
- ☹ Large discrepancies in UK life expectancy depending on where you live (up to 10 years less in deprived zones)

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- More single person households and couples without children (less likely to be addressed by policy)
- Ethnic background: 77% White, 9% Black, 4% Asian





### OBJECTIVE

- To improve the energy efficiency of high-rise buildings to band C or above in order to have modern, fit for purpose homes and neighbourhoods and reduce fuel poverty
- To track the impact of energy efficiency works in high rise blocks in Leeds and on the health and wellbeing of the tenants, so it can be used to design better future interventions and accessing future grant funding.



### ACTIONS & PILOT-SPECIFIC RESULT INDICATORS

#### LAYER 1 · Individual Lifestyle factors

Citizen referrals

#### LAYER 2 · Social and Community networks

#### LAYER 3 · Living and working conditions

Energy Efficiency improvement works

#### LAYER 4 · General socio-economic, cultural and environmental conditions

### PILOT-SPECIFIC RESULT INDICATORS

- Over-heating
- Uneven heating (differences between different rooms in an apartment)
- Links between Damp and COPD
- Health impact from overly insulated buildings
- Viral Disease Spread
- Behavioural change following impact (coping practices)

### WUP INTERVENTION IN MAIN EP SOCIAL DETERMINANTS OF HEALTH<sup>2</sup>

LAYER 0	LAYER 1	LAYER 2	LAYER 3	LAYER 4
Due to the sociodemographic characteristics of the target population and/or the WUP focus, a special impact is expected on:	HEALTHY LIFESTYLES AND HABITS	ASSOCIATIVE NETWORK	UNEMPLOYMENT LEVEL	ENVIRONMENTAL AND WEATHER CONDITIONS
AGED POPULATION	ENERGY EFFICIENCY HABITS	KEY COMMUNITY ACTORS AND PROFESSIONALS	FINANCIAL SITUATION, INCLUDING DEBTS	CITY INFRASTRUCTURE (GREEN ZONES, BIKELANES...)
LARGE FAMILIES	MENTAL HEALTH AND ATTITUDE	UNWANTED LONELINESS/ SOCIAL ISOLATION	STRUCTURAL HOUSING CONDITIONS (INSULATION...)	SUPPORTIVE POLICIES AGAINST EP
SINGLE PARENTS			ENERGY EFFICIENCY MEASURES AT HOME	GENERAL PUBLIC AWARENESS
FAMILIES WITH NO CHILDREN			FORMAL EDUCATION LEVEL	ENERGY PRICES
ETHNIC MINORITIES			HEALTH CITY EQUIPMENT	

## 5.2. Identification of the WUP

- **Title**

Leeds Tower Block Retrofit – Alleviating Energy Poverty and Improving Health

- **Period it covers**

August 2022 – August 2023 (preliminary dates)

- **Responsible authority**

Stephen Blackburn/Daniel Hardy LCC

- **Stakeholders and their responsibilities**

- Housing Leeds and Leeds City Council - Governance
- Prof. Lucie Middlemiss Leeds University – Monitoring
- Leeds City Council Officers, Private Sector Construction Company, Public Health Leeds etc – Key Actors
- Green Doctors, Linking Leeds – Local Alliance who will support the project by taking referrals

## 5.3. Thematic scope of the WUP

### 5.3.1. Social context of the city

Leeds is a Northern English city, which grew out of the industrial revolution, now with thriving university and financial services sectors.

- Population of over 790k people (2019). 18/9% of residents come from a minority ethnic background (more than Yorkshire average of 14.2% and less than English average of 20.2%), with 12.5% of the population born outside of the UK (more than Yorkshire average of 9.6%, and less than English average of 15.5%). Data from 2011 says that 33.3% of households are one-person households (more than 30.2% of English households and 30.5% of Yorkshire households), 7.6% are 'lone parent with dependent children' households (more than Yorkshire and English averages of 7.1%).
- There is a larger number of people aged 20-29 in the city as a result of thriving university sector.

- There is a considerable gap between rich and poor neighbourhoods, with 24% of neighbourhoods among the most deprived 10% in the UK, but 6.8% in the least deprived 10%.
- 21.5% of Leeds residents that work is earning below the Real Living Wage (£9.50 per hour) in 2021; 9.9% of Leeds residents are earning below the National Living Wage (£8.72). The unemployment rate was 4.3% in 2020 in comparison to 4.6% in England and has been stable for the previous 3 years.
- 22% estimated to experience relative poverty after housing costs, and 18% to experience absolute poverty after housing costs in 2019 (estimated according to national figures).
- 24% of children in Leeds lived in low-income families in 2019 (versus 19% in UK), including 18.2% (versus 15.4% in UK) that are claiming free school meals.
- Urban social housing renters represent 6.8% of the population of the city, and 22.5% of city residents experience deprivation due to low incomes.
- Fuel poverty rates, under LILEE (explained below), at 16.8% in 2019 (versus 13.4% in England).
- In Leeds, 79.1% of households have gas central heating, 10.4% are heating with electric
- Food bank use has been steadily increasing in the past 5 years. In 2020, there were 61,137 uses of foodbanks in Leeds. This was a 47% increase on the previous year.

### 5.3.2. Energy poverty in Leeds

Energy poverty is experienced throughout the city, although there are also pockets of deprivation where more people are affected the worst of which tend to be close to the city centre.

The current definition of Fuel Poverty in the UK is the Low-Income Low Energy Efficiency definition, which was brought into law in 2021, and applied to data retrospectively from 2019. The definition defines a household to be in fuel poverty (UK term for Energy Poverty) if it has a disposable income (after housing and energy costs) which is below the poverty line and the property associated with the household has an energy efficiency rating of band D or below.

Leeds grew enormously as a city during the industrial revolution. This means that a great deal of housing is very old, and not particularly energy efficient. The older housing in the city is characterised by long rows of terraced housing, including a 'back-to-back' design (where one house backs onto the other).



*Figure 40. High-rise blocks in Leeds*

In our research we will focus on high-rise housing, built during the 1960s and owned by local councils, rented out for social housing. Some of these high rises are now insulated using external cladding. We hope to be able to compare experiences of residents in similar blocks, some of which have been insulated and some of which have not.

(Please note that the precise tower blocks that we will focus on have not yet been determined: this will depend on the study design, and the programme of works being undertaken by Leeds City Council.)

Given our sample will be drawn from council tenants in Leeds, it is worth noting that 54k households rented from local council (in 2011), which amounts to 16.9% of the **urban, sub-urban and rural** population.

### **5.3.3. Policy on Energy Poverty in Leeds and integration in municipal action plans**

Leeds City Council's (LCC) main policy for combatting fuel poverty within the city is the Affordable Warmth Strategy 2017-2030. Some key points from this include:

- A more ambitious target than the national target: to increase the average SAP (Standard Assessment Procedure) rating of housing in Leeds to band C by 2020, and to ensure that no properties are below band E by 2030.
- An aim to make sure that resident's health and wellbeing is not put at risk due to being unable to heat their home.
- LCC's goals are mainly based around improving energy efficiency in Leeds. LCC has recognised the need to:

- insulate around 75,000 solid walled properties and upgrade their heating where needed at a cost of roughly £10,000 per property, amounting to approximately £750 million.
- provide insulation and heating upgrades to a further 26,500 non-solid walled properties at roughly £2,000 per property, costing £53 million.
- ensure that no properties are below Band E by 2030. There are about 19k households rated F and G in Leeds, bringing these up to E or above would cost £95- to £190 million.

Leeds City Council's Housing Department has a Capital Programme which uses money from the Housing Revenue Account to improve the standard of council properties across the city. As well as improvements to internal fittings this work also includes improvements to the fabric of the buildings, including insulation and other energy efficiency improvements.

While every effort is made to target energy efficiency/retrofit schemes in the areas where fuel poverty is prevalent, other things such as the type of grant funding that can be sourced for certain measures or tenures etc. can mean that this is not always possible.

Specific existing policies include:

- Better Homes Yorkshire – using private sector 'ECO' funding to provide grants and funding for all housing tenure types, particularly for loft and cavity wall insulation
- Energy efficiency advice: through Green Doctor or Home Plus (note that Green Doctor will be part of our intervention).
- Switching energy supplier support: through Citizens Advice.
- Local Welfare Support Scheme – offering 1,174 awards, to value of £32,174 (total) in 2019/20.
- Leeds Community Foundation offering grants associated with COVID to support Fuel poor households
- Energy from waste scheme has included a district heating component which is used for heat in the Burmantofts and St James area, including the Shakespeares.
- Total Heat – where council borrows money to install central heating, and tenant pays back the cost of this through bills

In the Affordable Warmth strategy LCC also note that they are looking for new ways of attracting funding for this work.



## 5.4. Target population

The case study is likely to include diverse sample, with the key common feature as people experiencing poverty (sample of 125 people). Given that our sample will only include people living in social housing managed by the Council, we can anticipate the type of tenants according to the criteria for allocation. Properties in Leeds are awarded to citizens based on the level of priority they have via an online bidding process. The level of priority given to a citizen who is bidding is based on four key categories: homelessness; medical; housing condition; and general, which can include issues such as overcrowding, children, or hardship.

Given the slightly greater numbers of people living either alone or without children in high-rise blocks in Leeds, our sample is likely to include single person households and couples without children (of all age categories). Note that these are both demographics that cause concern with relation to Energy Poverty policy, particularly younger people living alone or without children, as they are less likely to be addressed by policy.

As well as targeting people living in social housing in Leeds, our pilot will only include those living in housing that is energy efficiency band D or below: in-keeping with the English LILEE definition of fuel poverty (explained above). Our intervention will increase the energy efficiency of a high-rise building to band C or above. Much of the social housing in Leeds is currently categorised band D or below.

### 5.4.1. Target population data collection and classification under the socio-ecological model

TARGET POPULATION OF YOUR WUP
<b>Population: socio demographic characteristics</b>
<p>Our target population are people living in social housing in the city that is managed by Leeds City Council. Leeds City Council manages around 54,000 properties, spread across the whole of the city. There are a range of different property types, and this work will focus on people living in high rise blocks.</p> <p>What we know is across all council tenants:</p> <p>There are 53,359 named council tenants in Leeds. Of these 6953 live in the 116 high rise blocks in the city.</p> <p><b>Gender</b></p> <p>Female 61%    Male 39% (In high rise it is 62% male and 38% female)</p>

**Disability**

26% Disabled/Impaired 74% Not disabled

**Age**

14% are aged between 25 and 34, 19% are aged between 35 and 44, 20% are aged between 45 and 54, 18% are aged between 55 and 64, 13% are aged between 65 and 74 and 8% are aged between 75 and 84.

**Ethnic background**

- 77% White background
- 9% Black background
- 4% Asian background

Once we have finalised which high rise block we will be working with, we will narrow down the target population.

**Layer 1: Individual lifestyle factors****HEALTH**

In England, work on health inequalities has shown that those areas which score particularly high on the index of multiple deprivation also report shorter life expectancy and less healthy life years (Marmot review 10 years on, 2020).

Within the city there are large discrepancies in life expectancy depending on where you live. People living in the more affluent parts of the city can expect to live up to ten years longer than those who live in the more deprived areas, which tend to be on the edge of the city centre.

**Layer 2: Social and community networks**

When we have finalised the block, we will be working with we will contact the Tenant Engagement Officer that covers this specific part of the city, as well as tenants' groups, local community and faith groups and access social media sites connected with the local area, such as the Facebook page for the block(s) in question.

When asked about their satisfaction with life nowadays, the average response was 6.6 (0-4 low/ 5-6 medium/ 7-8 high/ 9-10 very high)

**Layer 3: Living and working conditions**

## EMPLOYMENT/UNEMPLOYMENT

Across all Housing Leeds tenants:

Main tenant

- 22% are in full-time employment
- 13% are in part-time employment
- 4% are self-employed
- 25% are not in employment
- 34% are retired

Partner:

- 36% are in full-time employment
- 12% are in part-time employment
- 4% are self-employed
- 20% are not in employment

29% are retired.

## ECONOMIC CONDITIONS

Across all tenancies when asked about their financial position, the responses were:

Living comfortably	7%
Doing alright	31%
Just about getting by	39%
Finding it fairly difficult	13%
Finding it very difficult	9%

As shown in the table above, 22% of tenants living in high-rise blocks describe their financial position as either 'fairly' or 'very' difficult.

## HOUSING CONDITIONS

- 73% of tenants living in high-rise blocks are satisfied with the service they receive from the council (their landlord).

- 44% of tenants living in high-rise blocks are happy with the heating and insulation and how it keeps their home warm in Winter. (Across all property types the figure is 66%.)

68% of tenants living in high-rise blocks have access to the internet at home

(All the above data is taken from the Star Survey for 2018, which is a questionnaire that is given out to all council tenants by Housing Leeds so that they can understand tenants views and identify areas where things can be improved)

## EDUCATION

Education: In Leeds, at the end of primary school (aged 11) 61% of pupils are meeting the expected standard, versus 65% in England (Leeds Observatory data). Only 40.9% of pupils achieve a strong pass in English and Maths at GCSE (age 16 exams) versus 43.5% in England. Leeds school attendance rates are comparable to English averages.

## Layer 4: General socio-economic, cultural and environmental conditions

### ENERGY PRICES

Energy prices are currently rising at a very fast rate across the UK in association with the rise in gas prices on wholesale markets, with cheapest retail prices in Jan 2021 at £813.70 per household per year, and in Nov 2021 £1213.48 per year (OFGEM data). Prices are expected to rise further in spring and autumn of 2022. Note that there are very limited gains to be had by switching supplier now that wholesale market prices are so high. Leeds households are subject to the UK energy market, and there is no special support for Leeds households with regards the energy market.

Leeds has a programme of work on climate change after declaring a climate emergency. A key part of the planned work is to increase the energy efficiency of council-owned housing. \$100 million will be invested in this by 2025.

### SOCIO ECONOMIC DEVELOPMENT IN THE AREA

Expansion of the current geographical remit for priority neighbourhoods into the 12 most disadvantaged neighbourhoods in Leeds (1%)

A more focused approach across 6 priority wards, namely:

- Hunslet & Riverside
- Killingbeck & Seacroft
- Beeston & Holbeck
- Armley

- Burmantofts & Richmond Hill
- Gipton & Harehills

#### 5.4.2. Target population data analysis and conclusions

##### a. Needs and Assets of the target population

The case study is likely to include diverse sample, with the key common feature as people experiencing poverty and living in energy inefficient high-rise housing (efficiency band D or below). This matches the English definition of fuel poverty. Within this broader fuel poor category, our target population is very diverse – which matches the diversity of social housing tenants in Leeds. Our intervention will increase the energy efficiency of a high-rise building to band C or above, thus bringing people out of fuel poverty by the English definition.

##### Energy inefficiency

We can identify specific tower blocks that have band D or below rating using publicly available information on the energy efficiency of buildings. Buildings are rated each time that they change owner or when substantial energy renovations are undertaken. Leeds City Council's programme of works is also partly shaped by the need for energy efficiency renovations. This means that we can be confident to find an appropriate building for our control group and intervention groups.

##### Poverty

Given that our sample will only include people living in social housing managed by the Council, we can anticipate the type of tenants according to the criteria for allocation. Properties in Leeds are awarded to citizens based on the level of priority they have via an online bidding process. The level of priority given to a citizen who is bidding is based on four key categories: homelessness; medical; housing condition; and general, which can include issues such as overcrowding, children, or hardship. This means that council tenants begin their tenancy in a state of considerable vulnerability, and often poverty.

##### Other characteristics

Given the slightly greater numbers of people living either alone or without children in high-rise blocks in Leeds, our sample is likely to include more single person households and couples without children (of all age categories). Note that these are both demographics that cause concern with relation to Energy Poverty policy, particularly younger people living alone or without children, as they are less likely to be addressed

by policy. Otherwise, we expect to recruit a demographic which is approximately representative of our social housing residents in Leeds.

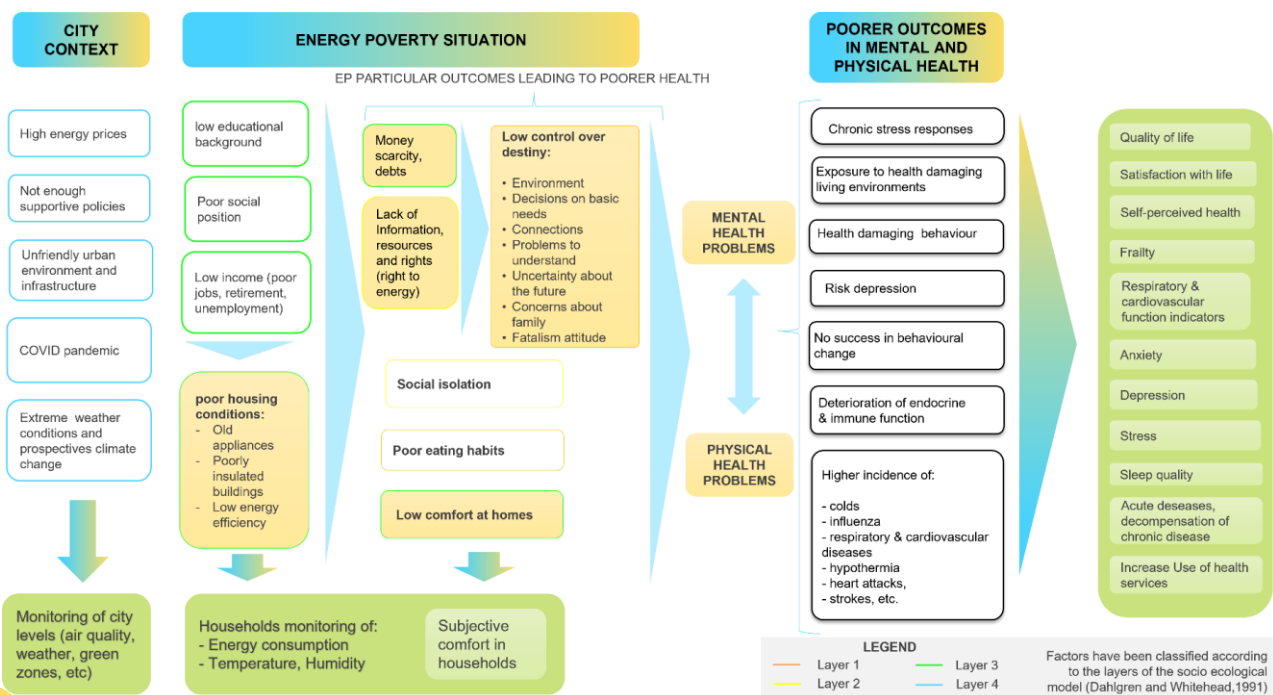
### Current needs

We are addressing a specific population: poor households living within inefficient high-rise blocks in Leeds. As we have detailed above in the description of the pilot case, we would expect people to have relatively worse health than the average population, as documented in the Marmot review of health inequalities (2020). Further they will have been affected more severely by COVID (Marmot, 2020). Marmot documents stagnant wage increase for the poorest households over the last 10 years, during a time of austerity in the UK, and a picture of increasing inequality and health disparities. We have also documented the increasing use of foodbanks above. The rapid change in energy prices that residents are facing will be somewhat alleviated by our intervention. While our intervention is not expected to address all of these problems, it certainly will provide a helpful change for residents at a difficult time.

### b. Causes for Energy Poverty in the pilot area and effects on health. Why our target population ends up with Energy Poverty?

The pathway or process that explains how people end up with Energy Poverty in all pilots can be summarised at the figure below. It also shows the effects of Energy Poverty in mental and physical health

Figure 41. Leeds pilot's pathway of Energy poverty causes and effects in health



of people, some of them measured during the project for the research evaluation. The orange-coloured boxes are the areas where this specific WUP will intervene through its different actions, minimising needs and maximising assets of these fields. Please note that the outline of some boxes has also been coloured based on its corresponding layer in the social ecological model (see figure legend). Green boxes contain the measurements that all pilots will take during the project for evaluation purposes.

## 5.5. Objectives of the WUP

### 5.5.1. Objective of the WUP

To improve the energy efficiency of the properties where the intervention is taking place, in line with the Council's Housing Strategy, which states that its key priorities are:

- have modern, fit for purpose homes and neighbourhoods
- reduce fuel poverty by having affordable energy efficient homes

Our specific objective for this project is to track the impact of energy efficiency works in high rise blocks in Leeds and the impact that the works have on the health and wellbeing of the tenants. The learning can be used evidence the impact of the intervention, design better future interventions and be used as evidence in accessing future grant funding.

During the project we will be working with two NGOs - Linking Leeds/ Green Doctor. As the team from the university are engaging with tenants to encourage and support them to fill out the questionnaires, or undertaking the qualitative interviews, they will be conscious that tenants may divulges concerns they may have regarding their property or their health and wellbeing.

In these instances, the tenants will be signposted to our partners for further support. If the issue is regarding the property or their energy tariff, then they will be directed to the Green Doctor. If it is a health and wellbeing issue, then the referral will be to Linking Leeds.

### 5.5.2. Tomorrow's newspaper

To help envisioning the impact of the WUP, here below is an imaginary news in a fictitious newspaper talking about our project results in five years from now.

## Tenants have their say on environmental improvements.



January 2027

*Leeds City Council is working with colleagues from the University and the EU to find out what tenants in the city think about the impact that energy efficiency improvements have on their properties.*

*Tenants from across the city have been consulted on several occasions over the last 18 months about work that the Council has been undertaking to make certain high-rise block greener.*

*The type of work the council has been undertaking includes energy renovation.*

*The hope is that by making properties more energy efficient the properties will be more comfortable and easier to keep warm, meaning tenants don't need to spend as much on heating. This will hopefully mean that fewer and fewer tenants are in danger of suffering from fuel poverty.*

**Cllr Mohammed Rafique, Executive Board Member for the Environment and Housing at Leeds City Council said: 'We are always working to improve the quality of our housing stock and this work has given us a great insight into the impact that work has.'**

**'It is great to hear first-hand from tenants how the work we do to improve their properties is making living conditions better and helping make their heating more affordable.'**



## 5.6. Overview of Actions

The following actions will be performed during the pilot project (detailed in 5.8.)

LIST OF WUP MAIN ACTIONS	
<b>Layer 1: Individual lifestyle factors</b>	
1.	Citizen referrals
<b>Layer 2: Social and community networks</b>	
-	
<b>Layer 3: Living and working conditions</b>	
2.	Energy efficiency improvement works
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>	
-	

## 5.7. Impact indicators

### 5.7.1. General Impact Indicators

The table below shows information about how the pilot will collect the general impact indicators established for the project.

Variable	Instrument/indicator	Data Source	Data collection
Sociodemographic details: age, sex, gender, occupation, etc.	Ad-hoc questionnaire	Online* questionnaire for data collection	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants
Health and wellbeing measures			
Quality of Life	Quality of Life (HRQoL)	Online version of the clinical standardised questionnaires	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants
Satisfaction with life	Satisfaction with Life Scale (SWL)		
Mental health: Depression	Depression and Anxiety Stress Scales (DASS/BSI)		
Mental health: Anxiety			
Mental health: Stress			
Self-perceived health			
Frailty	Self Perceived Multidimensional Impairment Index (SELFY-MPI)		
Subjective comfort in households	Self-reported scale <sup>41</sup>	Online version of the clinical standardised questionnaire	

<sup>41</sup> Frontczak, M., Andersen, R. V., & Wargocki, P. (2012).

Respiratory & cardiovascular function indicators	Peak flow measurement	IoT Home health control devices, real time monitoring	<input type="checkbox"/> Manual collection g) <input type="checkbox"/> Directly by participants h) <input type="checkbox"/> By another stakeholder  <input type="checkbox"/> Collection through wearables devices  <input type="checkbox"/> Other: ...
	SpO2 measurement		
	Blood pressure measurement		
	Sleep quality measurement		
Incidence of the acute diseases	Number of Diagnosed acute diseases	Electronic Health Records direct extraction and/or online questionnaire	<input type="checkbox"/> Direct extraction  <input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ...
Decompensation of chronic disease	Number of diagnosed exacerbations, all health settings (Emergencies, acute units, hospitalisation, primary care)		
Readmissions	Admissions in the ED (emergency department), acute units or regular hospitalisation		
Use of primary attention services	Visits to the primary attention services distinct from those aimed at renewing the prescriptions		
Life experienced	Impressions, comments, experience and subjective perceptions captured in focus groups and interviews & codified	Qualitative analysis codified records	Partner responsible (UNIVLEEDS) will provide the methodology and keep the data collected
Energy efficiency evaluation			
Energy consumption	Yearly Kw/day	Energy providers (DSOs) App	Definition in progress
Household income spent on energy	% of income/Euros	Online questionnaires	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: ...
Household conditions: temperature	Celsius Degree	IoT DT home sensors, real time monitoring	Definition in progress. To be detailed in D3.1
Household conditions: humidity	% Relative humidity		
Household conditions: air quality	CO2 and CO concentration		
City pollution	CO1, CH4, N2O, PM	SmartCity Open platforms (city-level/local data) Secondary sources (city reports, etc.)	-annual climate emergency report (for pollution, climate and weather conditions): <a href="https://www.leeds.gov.uk/plans-and-strategies/climate-change">https://www.leeds.gov.uk/plans-and-strategies/climate-change</a>  - annual report on air quality: <a href="https://www.leeds.gov.uk/clean-air/Air-pollution-and-air-quality">https://www.leeds.gov.uk/clean-air/Air-pollution-and-air-quality</a> .
City air quality	CO1, CH4, N2O, PM, soot & smoke (wildfires, urban fire), specific gases, dust, etc.		
City weather	Rain rays per year, Floods reported per year, Extreme heat days (>30°C) per year, Days below >5°C per year, Average temperatures, per season		
City climate	Comparison between these measures and the 10-previous-year reports and the 25-previous-year reports		
City green spaces	Green spaces (m2) per km2		

	Existence, localisation and length of <i>urban heat islands</i> Trees and parks or any other green space (m2) in <i>urban heat islands</i> (km2), if any		
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### 5.7.2. Pilot Specific indicators

The following indicators will be specifically collected for our pilot.

Indicator	Data collection point	Comments
Over heating: monitoring where heating levels go over a given temperature (25 degrees C?) in winter and summer.	Environmental monitoring	We will want access to this data from ASIDEES – might need to make specific arrangements for this.
Uneven heating: monitoring the differences between different rooms in an apartment. Flag where heating disparity over a given amount (e.g. larger than 8 degrees C?)	Environmental monitoring	We will want access to this data from ASIDEES – might need to make specific arrangements for this.
The links between damp and COPD could be interesting to monitor, especially with the anticipated improvements	Environmental monitoring and longitudinal questionnaire data	We may want to use this data from two sources to understand the effects of insulation on respiratory conditions.
Health impacts from overly insulated buildings (including headaches, fatigue, trouble concentrating, respiratory symptoms)	Longitudinal questionnaire?	Pending to confirm is this will be included in the questionnaire
Viral disease spread	Longitudinal questionnaire?	Pending to confirm is this will be included in the questionnaire
Behavioural change following intervention	Longitudinal questionnaire	Questions on coping practices.

## 5.8. WUP Detailed planification

ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 1. Citizen Referrals</b>	
Description	
<p>During the research process it is highly likely that issues that citizens are facing will become apparent and these cannot be tackled by the research team representative. Therefore, we have partners with two NGOs to whom we can signpost citizens for specific support.</p> <p>The two NGOs are the Green Doctor and Linking Leeds. The Green Doctor is an energy efficiency organisation who can support tenants with tariff advice and other energy improvement Linking Leeds are a social prescribing organisation who can help citizens tackle issues that are negatively impacting their health and wellbeing.</p>	
Outcomes from the action	
Citizens who are struggling with their energy bills or are experiencing issues that are negatively impacting their health and wellbeing will be targeted to one of our NGO partners for more targeted support.	
Stakeholders involved	Period it covers (develop it on the next chart)
Citizens Research Team Green Doctors Linking Leeds	Sept 2022 – Sept 2023
Budget and resources (from Wellbased project or from other sources)	
Leeds City Council already works in Partnership with these NGOs	

ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 2.</b> Energy Efficiency Improvement Works	
Description	
<p>Leeds City Council's Investment Strategy Team have an ongoing programme of works to improve the living environment of their tenants, and to improve the energy efficiency of the council's properties.</p> <p>These works can vary depending on the type of property, but will include the installation of cladding or other types of insulation, the replacement of boilers, or the installation of new windows etc.</p> <p>This project will examine the impact of these improvements on the properties and also the people who live in them and compare them against the experience of tenants who live in properties that have not undergone any energy efficiency improvement works.</p>	
Outcomes from the action	
More energy efficient properties.	
Stakeholders involved	Period it covers (develop it on the next chart)
Building Contractor Leeds City Council Investment Strategy Team Leeds City Council Tenant Engagement Team	Oct 2022 - Nov 2023
Budget and resources (from Wellbased project or from other sources)	
The Investment Strategy Team has a devolved budget.	

Table 19. Timeline of WUP actions (Leeds)

	Aug. 22	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	May. 2023	Jun. 2023	Jul. 2023	Aug. 2023	Sep. 2023	Oct. 2023	Nov. 2023	Dec. 2023	Jan. 2024
<b>Layer 1 – Individual lifestyle factors</b>																		
ACTION 1. Citizen referrals																		
<b>Layer 3 – Living and working conditions</b>																		
ACTION 2. Energy efficiency improvement works																		

# Chapter 6: Óbuda-Békásmegyer (Budapest, Hungary)

## 6.1. Overview of the WUP



URBAN PROGRAM

PILOTSITE  
**OBUDA**  
(Hungary)

**PERIOD** Pilot activities: 12 months  
(AUG 2022/JAN 2023 to JUL 2023/DEC 2023)<sup>1</sup>  
+ follow-up audit 6 months after the  
end of the project activities

**RESPONSIBLE AUTHORITY** Óbuda-Békásmegyer Municipality (OBM)

**OTHER KEY STAKEHOLDERS**

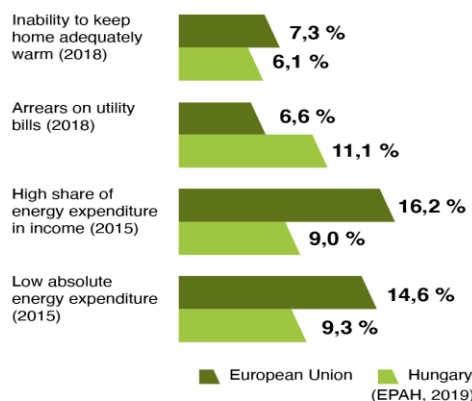
**Óbuda-Békásmegyer Urban Development Plc. (OBVF):** implementation of the city program  
**The Óbuda Family Counseling and Child Protection:** implementation of the social programs  
**Óbuda Asset Management Ltd:** technical tasks  
**Óbuda Outpatient Health Service and the Health Development Office:** health screenings  
**The Urban Local Alliance:** delivering trainings, workshops, providing contact network, etc.

### THEMATIC SCOPE

#### HUNGARY: ENERGY POVERTY COUNTRY DATA

- Hungarian households spend on average 60% of their housing maintenance costs on energy
- Household solid fuel is responsible for more than 80% of the emissions of PM2.5 (EU average: 41%)
- 21.08% solely relies on residential solid fuel and 19.1% relies on solid fuel and gas at the same time

#### Performance relative to EU average



#### ÓBUDA-BÉKÁSMEGYER (BUDAPEST): SOCIAL CONTEXT OF THE DISTRICT

- Total population: 134,105
- 18.4% of the population is above 59 years of age
- 14.2% ethnic minority population
- 1.23% of the working age population is a registered job seeker
- 3.29% of the freshly graduated are unemployed
- 10.2% socioeconomically endangered or in crisis

#### Energy poverty and housing local conditions (In Óbuda-Békásmegyer district)

- 15.2% of blocks are endangered or in crisis
- 9.1% of all flats are endangered or in crisis

In general, outdated housing stock, outdated stoves and poor thermal insulation of buildings, leading to high overhead costs and air pollution

#### NATIONAL CURRENT POLICY TO TACKLE ENERGY POVERTY

- EP not mentioned in the National Energy and Climate Plan
- EP measured for the first time in 2020 by Habitat for Humanity and ComAct project
- Protected Consumer Status
- Overhead reduction
- Social fuel subsidy
- Warmth of Home Program
- Coronavirus especial measures

#### INTEGRATION IN MUNICIPAL ACTION PLANS AND OTHER LOCAL PROJECTS

- Smart metering project
- Social urban rehabilitation in Békásmegyer (45 flats rehabilitated between 2021 and 2022)
- Housing allowance housing benefits (464 beneficiaries in 2020)
- Rent modification (194 beneficiaries in 2020)
- Regular arrears management support (13 beneficiaries in 2020)
- A lump-sum arrears management allowance (36 beneficiaries in 2020)

<sup>1</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)

### TARGET POPULATION

<b>INTERVENTION AREA</b>	Békásmegyer neighborhood, which is a large part of District III-Óbuda-Békásmegyer of Budapest	<b>TOTAL POPULATION</b>	29,090 (2020)
<b>VULNERABLE POPULATION</b>	Low-income families, victims of domestic violence and/or drug abuse, disabled and/or chronically ill people, unemployed, single mothers, etc.		
<b>NUMBER OF WUP PARTICIPANTS</b>	146 for intervention group (+ 146 for control group)		

### MAIN EP SOCIAL DETERMINANTS OF HEALTH IN WUP TARGET POPULATION<sup>2</sup>

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#### CITY INFRASTRUCTURE

- ☹️ Inequal spatial distribution of green areas
- 😊 High proportion of residential green space
- 😊 One of the three districts most equipped with forest areas
- 😊 Recreation and sports parks and running tracks throughout the city, very popular

#### MUNICIPALITY COMMITMENT

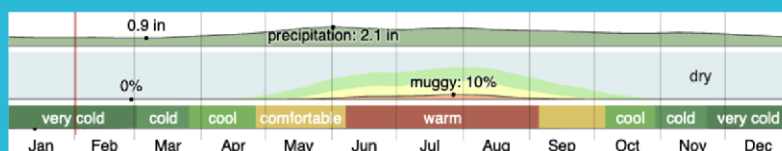
- 😊 Local government very committed to health, wellbeing and sustainability
- 😊 Previous interventions and pilots in the area

#### ENERGY PRICES

- 😊 Stable

#### WEATHER AND AIR CONDITIONS

- ☹️ Hard summer, heat islands and more and more frequent heat waves
- ☹️ Increasing concentration of airborne dust and pollen
- ☹️ Risk of flooding



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#### WORKING CONDITIONS

- ☹️ Low income level and 10% in deep poverty
- ☹️ High unemployment rate (higher among women)
- ☹️ 25,55% in low-status jobs
- Many jobs in public sector

#### HOUSING CONDITION

- ☹️ Old housing and some in poor conditions

- ☹️ District heating leads to very dry air in flats
- 😊 Some energy measures already implemented

#### EDUCATION

- ☹️ 10% have no more than a basic education
- 😊 Good educational infrastructure

#### HEALTH EQUIPMENT

- 😊 Good provision of health and social care services in comparison with other districts

#### OTHER LIVING CONDITIONS

- ☹️ Very high population density
- ☹️ Drug problems, wandering youth, vandalism
- 😊 General satisfaction with the development of the neighborhood

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#### ASSOCIATIVE NETWORK

- 😊 Good associative network (cultural, social care, sports) -300 in the district but less than in others
- 😊 Active district initiatives to promote health
- 😊 Strong local network of stakeholders to fight against social issues and EP

#### UNWANTED LONELINESS AND SOCIAL ISOLATION

- ☹️ Elderly inhabitants at risk of unwanted loneliness

#### UNHEALTHY / HEALTHY LIFESTYLES AND HABITS

- ☹️ Less healthy habits and worrying state of health than the city average
- ☹️ 26% of inhabitants with hypertension (city average 16%)
- ☹️ Urban women significantly more regular drinkers than in rural areas
- 😊 Generally good self-perception of health

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- Aged population (aging index in Békásmegyer: 235,86%)
- Significant proportion of Roma people, with 4/5 people living below the subsistence level





### OBJECTIVE

- Households living a more conscious and sustainable lifestyle
- Less spending of households income on offsetting overheads and minimizing wasting (e.g. services they do not use or costs that are not their responsibility)
- Households creating the basic conditions necessary for their well-being: to be able to heat / cool the temperature of the apartment properly, to pay their bills and to get their medicines
- Ensuring adequate information and access to information
- Improving (mental) health and general well-being



### ACTIONS & PILOT-SPECIFIC RESULT INDICATORS

#### PILOT-SPECIFIC RESULT INDICATORS

#### LAYER 1 · Individual Lifestyle factors

- Energy audits
- Arrears management consulting
- Energy efficiency trainings
- Household management trainings
- Health improving actions

Min. 3 Energy Efficiency trainings  
Min. 2 households management trainings

#### LAYER 2 · Social and Community networks

- Training professionals on energy efficiency
- Attitude forming programs
- Community building programs

Min. 15 people in energy efficiency trainings  
Min. 2 attitude formation programs  
Min. 2 community building programs

#### LAYER 3 · Living and working conditions

- Installing smart metres for changing habits behaviour
- Energy modernization of households

Inefficient household appliances replaced and energy refurbishments based on needs

#### LAYER 4 · General socio-economic, cultural and environmental conditions

- Engagement of stakeholders on different levels, in order to impact policy-making

Min. 3 conferences for local stakeholders  
Min. 2 conferences – professional level

### WUP INTERVENTION IN MAIN EP SOCIAL DETERMINANTS OF HEALTH<sup>3</sup>

LAYER 0	LAYER 1	LAYER 2	LAYER 3	LAYER 4
Due to the sociodemographic characteristics of the target population and/or the WUP focus, a special impact is expected on:	HEALTHY LIFESTYLES AND HABITS	ASSOCIATIVE NETWORK	UNEMPLOYMENT LEVEL	ENVIRONMENTAL AND WEATHER CONDITIONS
AGED POPULATION	ENERGY EFFICIENCY HABITS	KEY COMMUNITY ACTORS AND PROFESSIONALS	FINANCIAL SITUATION, INCLUDING DEBTS	CITY INFRASTRUCTURE (GREEN ZONES, BIKELANES...)
LARGE FAMILIES	MENTAL HEALTH AND ATTITUDE	UNWANTED LONELINESS/ SOCIAL ISOLATION	STRUCTURAL HOUSING CONDITIONS (INSULATION...)	SUPPORTIVE POLICIES AGAINST EP
SINGLE PARENTS			ENERGY EFFICIENCY MEASURES AT HOME	GENERAL PUBLIC AWARENESS
FAMILIES WITH NO CHILDREN			FORMAL EDUCATION LEVEL	ENERGY PRICES
ETHNIC MINORITIES			HEALTH CITY EQUIPMENT	

<sup>3</sup> The coloured areas represent the main categories of social determinants of health related to EP where the WUP will intervene. Only the ones with a direct link to the actions planned have been represented in order to outline the specificities of each pilot city.

## 6.2. Identification of the WUP

- **Title**

Wellbased Urban Programme in the City of Óbuda-Békásmegyer

- **Period it covers**

Pilot activities: 12 months (from August 2022/Jan. 2023 to July 2023/Dec. 2023)<sup>42</sup>

+ follow-up audit 6 months after the end of the project activities

- **Responsible authority**

Óbuda-Békásmegyer Municipality (OBM)

- **Stakeholders and their responsibilities**

- Óbuda-Békásmegyer Urban Development Plc. (OBVF) is primarily responsible for the implementation of the city program, as a related third party, on behalf of the Local Government.
- The Óbuda Family Counseling and Child Protection Centre is responsible for the implementation of the social programs, while the Óbuda Asset Management Ltd. participates in the performance of technical tasks.
- Health screenings are being carried out jointly by the Óbuda Outpatient Health Service and the Health Development Office.
- The Local Alliance will contribute to the WUP implementation through their experience at local level (delivering trainings, workshops, providing contact network...).

## 6.3. Thematic scope of the WUP

### 6.3.1. Social context of the district

The total population of the district, Óbuda-Békásmegyer is 134,105 people, as of 2021. The population is stagnant or growing slowly compared to recent years. The 3rd district is the second most populous district of the capital of Hungary. 2.5% of the population belong to an ethnic group; according to the most recent

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<sup>42</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)

2011 census, the city's population was 126,478 people: 106,212 (85.80%) of them claimed to be Hungarian, 2,240 (1.81%) German, 708 (0.57%) Gypsy, 485 (0.39%) Romanian and 476 (0.38%) Russian.

Social statistical indicators such as natural population decline or the number of live births are like the average of the capital. Of the permanent population, the number of people aged 18-59 is high, and the aging rate is similar to the average in the capital. In the district, the proportion of those under 15 is 13.1% and that of the elderly is 18.4%. The proportion of registered jobseekers as a percentage of the working age population (permanent residents aged 15-64) (1.23%) and the proportion of unemployed starting a career (freshly graduated) are also similar to the average of Budapest (3.29%).

The number of registered non-profit organizations per 1,000 inhabitants is 16.3, which is below average. The proportion of schools with internet access in both primary and secondary education is slightly below average at 89%. The number of registered economic enterprises per thousand inhabitants is 230, which is similar to the Budapest average. The proportion of newly built dwellings is less than half of the average of all districts (0.26%), but the residential gas consumption is significantly higher than the average of the capital (1.14 [1000 m<sup>3</sup> / person]) (KSH, 2019<sup>43</sup>).

### 6.3.2. Energy poverty data

There is currently no official definition of Energy Poverty in Hungary.

Due to the high proportion of privately owned dwellings, households spend on average almost 60 percent of their housing maintenance costs on energy in Hungary. 9 percent of households spent more than 25 percent of their income on energy in 2015; most of them are severely affected by Energy Poverty. About 10 percent of households are definitely affected by Energy Poverty in Hungary.<sup>44</sup> Those who spend a very small portion of their low income on energy are particularly exposed, as insufficient heating, hot water and electricity consumption are essential for health and well-being. Of course, energy expenditures can only be curbed to a limited extent, and if a household's income is insufficient or other unexpected expenses occur, they begin to accumulate debt with service providers. According to the records of the Hungarian Energy and Utilities Regulatory Authority, as of 2020 approximately 500,000 consumers have arrears of more than 60 days, which is 11.9% of the 4.21 million households (KSH, 2016).

The housing stock in Hungary is predominantly outdated, residential buildings are typically of poor energy efficiency, leading to high overhead costs, carbon dioxide and air pollution. Due to outdated stoves and poor

<sup>43</sup>KSH, 2019: <https://www.teir.hu/helyzet-ter-kep/>

<sup>44</sup> Lakhatási jelentés 2020 (Housing Report 2020). Habitat for Humanity Magyarország Nonprofit Kft, Budapest, 2020. <https://habitat.hu/sites/lakhatasi-jelentes-2020/energiaszegenysegi/>

thermal insulation of buildings, residential solid fuel is one of the main causes of air pollution in Hungary. Household solid fuel is responsible for more than 80 percent of the emissions of PM2.5 particulate matter in Hungary – the EU average is 41 percent, and the average per capita dust emissions are less than a third of Hungary's (*Eurostat*). According to *Housing Report 2020*, 21.08% of the whole population solely relies on residential solid fuel, and the proportion of those relying on solid fuel and gas at the same time is about 19.1%.

The national goals and state ambitions related to Energy Poverty must be indicated in the National Energy and Climate Plan (NEKT), however, currently no specific commitments are included in it.

### **6.3.3. Current policy to face Energy Poverty**

The national goals and state ambitions related to Energy Poverty must be indicated in the National Energy and Climate Plan (NEKT), however, currently no specific commitments are included in it. We have very limited information on whether Energy Poverty itself has been measured at national level. The change in the energy prices (measured by KSH) and the registration of the utility fee arrears (data gathered by Hungarian Energy and Utilities Regulatory Authority) has been investigated.

The Hungarian unit of Habitat for Humanity has been preparing housing reports since 2012, and they measured and examined Energy Poverty for the first time in their housing report in 2020. The Metropolitan Research Institute made a study about status of Energy Poverty within the Hungarian society in the frame of H2020 ComAct project but the results have not yet been published.

State policies carried out are the following:

- **Protected Consumer Status**

In the case of utility arrears, the protected consumer status may be claimed, which is subject to certain conditions of need. This provides a deferral and instalment payment option to repay the debt, however, it does not provide a discount or other support. In order to avoid repayment and future debts, service providers can often install prepaid meters, which, in addition to their benefits, can increase consumer vulnerability. If a household has no way to replenish its balance, its access to the network will be immediately lost.

- **Overhead reduction**

The overhead reduction that came into effect in 2013 reduced household energy prices in three steps, regardless of social status. While in the NEKT this appears to be one of the main measures in connection with Energy Poverty on the part of the state, it cannot be called an effective intervention for the reasons

mentioned earlier. In addition, the central housing maintenance subsidy, which was socially targeted, in contrast to the overhead reduction, was abolished in 2015.

- **Social fuel subsidy**

Municipalities of settlements with a population of less than 5,000 can apply for the social fuel support program, and from the amount thus obtained, they purchase fuel, which is distributed among households in need according to locally determined conditions. The budget of the program has reached HUF 5 billion since 2018. The fair way of distribution, both nationally and locally, is questionable. In addition to firewood, this source can also be used for lignite since 2014. Initially, 84 municipalities took advantage of this opportunity, but in 2019 their number increased to 252; these grants amount for only half a billion of the total grants (*Átlátszó, 2020*).<sup>45</sup>

- **Warmth of Home Program**

The Warmth of Home Program, launched in 2014, provided state support for residential energy renovations through tenders, primarily to improve the energy efficiency of residential buildings and households. This includes energy renovation of buildings, replacement of doors and windows and modernization of heating. Because these grants required pre-financing and a significant deductible, low-income households were unable to participate in the program.

- **Coronavirus epidemic and energy services:**

At the beginning of the coronavirus epidemic in Hungary, energy suppliers suspended debt shutdowns for their retail customers. The moratorium was a temporary relief for those who would have been threatened with losing their homes during the epidemic. However, this assistance did not affect one of the most vulnerable groups of consumers, those using prepaid meters, precisely because of the principle of prepayment.<sup>46</sup>

#### **6.3.4. Integration in municipal action plans and other local projects**

There are several local initiatives to tackle Energy Poverty, namely:

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<sup>45</sup> <https://atlatzo.hu/kozpenz/2020/09/08/rossz-minosegu-szenet-osztanak-a-szocialis-tuzelo-program-kereteben-leisztinger-is-profitat/>

<sup>46</sup> Lakhatási jelentés 2020 (Housing Report 2020). Habitat for Humanity Magyarország Nonprofit Kft, Budapest, 2020. <https://habitat.hu/sites/lakhatasi-jelentes-2020/energiaszegenyseg/>

- **Smart metering project:** During the Intelligent Network Pilot Project, KOM Zrt. carried out the installation of smart natural gas meters and electricity meters on over 4000 sites in the district. The data collection takes place between 2019-2023. Half of the smart meters involve municipally owned housing, often rented on a social basis. The installation of smart meters and continuous monitoring of energy consumption would provide an opportunity for families in need to rationalize their energy use, however, due to the introduction of GDPR rules, utilities currently do not provide data to the Municipality. Service providers shall make consumption data available to measured households and the Municipality in return for informed consent.

- **Social urban rehabilitation in Békásmegyer:** The aim of the project is to address in a complex way the socio-physical-economic problems that are concentrated in deprived or endangered neighbourhoods in order to promote the social integration of those living in the area. The interventions are based on the strengthening of the residential function of the affected districts, the expansion and development of their existing functions, and the establishment of social, community and public space functions. Within the framework of the project, 45 flats will be modernized together with energy efficiency between 2021 and 2022, which is expected to significantly reduce housing maintenance costs, primarily energy costs.

The Municipality ensured the following support to those in need:

- **Housing allowance:** can be established in order to reduce the monthly costs of housing maintenance and to preserve housing. 464 people received housing benefits in the district in 2020, in the average amount of HUF 5,369 (approx. 14.99 EUR) per month.

- **Rent modification:** If the tenant pays a municipal or market-based rent due to a decrease in household income that would create an extraordinary life situation before the next review of the rent rate, he may apply for a rent modification. 194 people received rent changes in 2020.

- **Regular arrears management support** is available to households or individuals who accumulate debt through no fault of their own and whose debt to be managed does not exceed HUF 528,000 (approx. 1,473.86 EUR) and has entered into an instalment agreement with the service provider to settle the debt and meets additional financial and housing size conditions. 13 people received regular arrears management support in 2020, on average HUF 14,100 (approx. 39.36 EUR) per month.

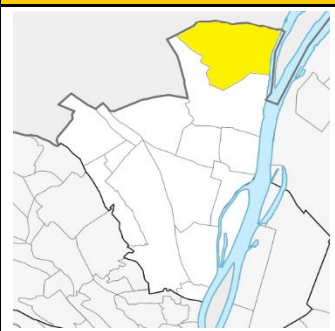
- **A lump-sum arrears management allowance** is available to a household or individual who accumulates debt through no fault of its own and meets financial and housing size conditions. 36 people received an average lump sum management grant in 2020, of HUF 81,000 (approx. 226.13 EUR). The objectives of the WUP are fully in line with the other planning documents and concepts of the district, namely the Integrated Settlement Development Strategy, the Climate Strategy and the SECAP. The district

is strongly committed to sustainability and tackling social issues, so the combined use of the named documents will allow for greater effectiveness.

The WUP expands the objectives of the local government with mainly health and social approach and strengthens the tools set up to achieve the goals set out in all other planning documents and strategies. We hope that the specific goals and interventions, the experiences and good practices can also have an impact on future policymaking.

## 6.4. Target population

### 6.4.1. Target population data collection and classification under the socio-ecological model

TARGET POPULATION OF THE WUP	
	<p>Budapest consists of twenty-three districts, Óbuda-Békásmegyer is the 3rd district of the Hungarian capital. It is located to the north-western fringe of the city, stretching along the right side of the river Danube.</p> <p>The third district is quite diverse in all respects, with a wide variety of social groups living here.</p> <p>Óbuda-Békásmegyer can also be divided into several different units and neighbourhoods: the target group lives in the northern part of the city, called Békásmegyer, where most of the fragile social groups live.</p> <p>Here below are described its main characteristics classified under the social ecological model. Data collection can be found in Annex 2.</p>
<b>Population: socio demographic characteristics</b>	
<p>Békásmegyer is a large part of the 3<sup>rd</sup> district, which can be divided into two main parts by the railway line: the mountain side and the Danube side of Békásmegyer. The permanent <b>population</b> of Békásmegyer was 29,090 as of 2020 (which is 21.69% of the district's total population), the proportion of women in the total population was 55.23%.</p>	



Compared to the district average, the proportion of inhabitants under the age of 15 is lower in Békásmegyer (12.3%; district rate 13.1%), while the proportion of the elderly is significantly higher (29.01%; district rate 18.4%). In the whole district the **aging index** is 147.95%, while in Békásmegyer it is 235.86%.

The district has the lowest level of **education** in the target area. 10% of those living here have at most a primary education (district average: 5.7%) and only 21.7% have a taken part in higher education (district average: 39.4%).

The lowest **income** category characterizes the housing estate in Békásmegyer, where the stock of residential buildings is also aging, with a lower degree of comfort. The population density in this area is also very high, considering that a significant amount of panel blocks was built in Békásmegyer during the second half of the 20th century. Typically, these areas are home to most of the disadvantaged population.

The lowest category of net annual income for the district is the range between HUF 1,170,000 (3,213.39 EUR) and HUF 1,402,000 (3,850.21 EUR), which means a monthly net income of HUF 97,500-116,800 (267.69-320.66 EUR) per capita. This income category is strongly typical of the housing estates in Békásmegyer, however, approximately 10% of the people living in the target area live in deep poverty, where their per capita income does not reach HUF 50,000 (137.28 EUR) per month.

Based on the examination of the **social stratification** of the district, the population of the housing estates, and especially of the Békásmegyer area, differs significantly from the suburban population of the district in terms of income conditions, education, but also cultural and consumption habits and lifestyle. In the housing estate part of Békásmegyer, the situation of society is the most unfavourable in the whole district, with the greatest need for social programs and institutions. The presence of the Roma population is also the highest here. However, it is fortunate that the coexistence is not a source of problems, there are no significant conflicts. Drug problems, wandering youth, vandalism do exist in the area, of which the prevention and management requires a strong social and public safety presence in the area.

#### **AREAS ESPECIALLY VULNERABLE WITHIN THE AREA OF INTERVENTION**

Besides the general data described above, some specific neighbourhoods within Békásmegyer present a much worse situation. The district has conducted a social mapping in the whole district to find the socially disadvantaged territorial units in Óbuda-Békásmegyer. The study found that

- 15.2% of blocks are endangered or in crisis,
- 9.1% of all flats are endangered or in crisis,
- 10.2% of the district's population is endangered or in crisis.

As Figure 43. shows, most of the endangered population of the district lives in Békásmegyer, including the target area.



#### LEGEND




-  Blocks not endangered
-  Endangered blocks
-  Blocks in crisis



Figure 43. Vulnerable neighbourhoods within the 3rd district, Óbuda-Békásmegyer

Source: "Thematic Development Program for Social Urban Rehabilitation – Delimitation of Crisis Areas" Map, 2014, Óbuda-Békásmegyer Municipality

### Layer 1: Individual lifestyle factors

#### HEALTH

Most households in the target area are characterized by **unhealthy lifestyle and health problems**. In terms of the structure of death in the district (and in the whole capital), most people died of diseases of the circulatory system, followed by cancer, and by gastrointestinal diseases. The fourth main cause was external causes and the fifth was respiratory diseases. According to the data on health care users in the city, the leading diseases are diseases related to the respiratory system, the circulatory system and the musculoskeletal system.

Examining the complex index used in terms of lifestyle and quality of life, the health situation in Békásmegyer is particularly worrying, even though it is not the part of the district where most elderly people live. In Békásmegyer, 26% of inhabitants have a case of **hypertension**, while in other parts of the district this number is only 16%.

Regarding the territorial distribution of **smokers**, there are no territorial features to be recognized.

One-third (35.5%) of young men and nearly a quarter (22.1%) of young women smoked regularly in 2009. One-third of middle-aged men and women are regular smokers. Regular smoking is very rare in both older men and women, around 7%.

Both young and middle-aged women in Budapest have significantly more regular **drinkers** than women in rural areas of a similar age group. Among young women in Budapest, the share of heavy drinkers exceeds 6%, which is significantly higher than the frequency among their middle-aged and elderly peers. Middle-aged women in the capital were significantly more likely to use **drugs** than rural women in a similar age group. The difference between the Budapest and rural areas in the case of young women proved to be statistically significant.

Among middle-aged men in rural areas, middle-aged men in the capital exercise significantly less (but among older people, the proportion of those who **exercise** daily is already higher among those living in Budapest). Although the proportion of obese and overweight people in Budapest is more favorable than the rural average in both age groups, it is still an existing problem. The proportion of **overweight** men is higher than that of women, and the proportion increases with age for both sexes.

## Layer 2: Social and community networks

Approximately half of the families living in the target area have no children, making the most common of households being a **one-person household** (37%). Three-quarters of the families have one or two people, so the sample is not characterized by a cohabitation-based nuclear family model of 2 parents and at least one child. Families have overall few social problems.

The number of active **NGOs** in the district is approx. 300. In terms of their scope of activities, they include organizations operating alongside institutions (e.g. school, kindergarten foundations), health and social organizations, cultural organizations, housing association organizations, and sports activity associations. The number of **registered non-profit organizations** per thousand inhabitants in the district is 15.7, which is below the average of most districts and the average of Budapest (21.7).

The number of **kindergarteners** per one kindergarten place in the district is 0.89, which is almost the same as the average value in Budapest (0.88), therefore the number of places is sufficient. 12 nurseries and 24 kindergartens provide care for children between the ages 0-7, but capacity expansion is needed in terms of nursery school places (966 children were registered for 946 places in 2015).

There are 25 **primary schools** in the district, the number of students is similar to the average in the capital. **Secondary education** is provided by 5 grammar schools, 8 vocational secondary schools and vocational schools throughout the district. The **higher education** institutions of the district include the Budapest College of

Contemporary Dance, the Institute of Informatics Applications of the Gábor Dénes College, the University of Óbuda, the King Sigismund College, and the building of the Institute of Psychology of the Károli Gáspár Reformed University.

The larger (Catholic, Reformed, Lutheran) and smaller churches are also represented in the district. The district has 2 theater associations, 7 cultural and community houses, 4 libraries with 1 branch library, 10 museums, 2 cinemas and 7 music bands. There are many free **cultural** events throughout the district each year.

**Outpatient** care is provided by specialist clinics in the district, and one unit also operates in Békásmegyer. There is an **inpatient** care facility in the municipality. These units and their doctors and nurses are able to provide health care to all residents of the city. In 2015, 61 adult and 28 pediatric GPs provided primary medical care to the residents of the district. 37 dentists and 2 oral surgeons are involved in dental and oral surgery. Two full-time school doctors perform youth health tasks. There are 56 nurses working in primary care.

### Layer 3: Living and working conditions

#### WORKING CONDITIONS

Slightly more than half of those of the working age population living in the target area is **employed**, 25.55% of them are employed in low-prestige employment groups. The proportion of the retired and inactive population is approximately the same. The proportion of **jobseekers** registered in the district in relation to the working age population is 1.23% (2019), and the proportion of the long-term unemployed in the same year is 31.65%. Approximately 80% of job seekers registered in the district have a **low level of education**. The proportion of registered jobseekers within the resident population is highest in the 36-45 age group (43%); about 66% of job seekers are women.

The number of registered enterprises in the **industrial sector** and in **certain economic sectors of the tertiary sector** are significant in the district. The most outstanding economic sectors include trade and repair of motor vehicles, professional, scientific and technical activities, the infocommunications sector and **R & D & I** activities. The guarantee of the further development of the latter is provided by the research activities taking into account the industrial needs and the local higher education R&D activities. The number of registered economic enterprises per thousand inhabitants in the district was 230 in 2014, which corresponds to the national average (227), and similar to the other districts of Budapest. Regarding the distribution of enterprises by the number of employees, **micro-enterprises** (0-9 persons) have a clear predominance with 9,697 such enterprises registered in 2012. The district's retail network is well developed.

#### HOUSING CONDITIONS

The **population density** in this area is very high, due to the fact that a significant amount of panel blocks was built in Békásmegyer during the second half of the **20th century**. As a result, the housing estates (including the area of Békásmegyer) are infrastructurally excellently equipped.

Typically, these districts are home to the vast majority of the disadvantaged population. The most vulnerable social group in the country is the Roma population, with four-fifths of their population living below the subsistence level. The proportion of the Roma population in the target area is significant.

The green surface system of the district is based on its natural geography and the city structure, it is composed of a number of smaller and larger elements. Larger contiguous parts of the units are typically located in the western and north-western part of the district, in a block (eg forest areas), while smaller ones are typically mosaically embedded in the urban fabric (e.g. public parks, including the Danube island of Óbuda). It is also worth mentioning the water surfaces in close connection with the green surfaces, as an important part of the system and as elements actively influencing the climate of the district.

The total area of forests and wooded areas in the district is little less than 5% of the district. They are mostly located in the Buda Hills. Other extensive forests are located in the northern half of the district and on the Óbuda Island.

Óbuda-Békásmegyer is one of the three districts most equipped with forest areas among the 23 districts of Budapest. However, regarding the green network, which also includes public green spaces, Óbuda shows quite poor values: in some parts of the district, the nearest public park may be located 3.5 km away from the homes of people. Thus, in the case of Óbuda-Békásmegyer, the size of the green areas per capita falls into the second lowest value category, between 2-3.5 m<sup>2</sup>. The Budapest average is 5.4 m<sup>2</sup> per capita, which is still significantly less than 9 m<sup>2</sup>, the recommended value by the World Health Organization (WHO).

Because the Municipality considers healthy living a top priority, several recreation and sports parks, running tracks have been installed and developed throughout the city, which is free to use anytime of the day. These equipments prove to be very popular among citizens and are in continuous use. Green areas such as the forest areas, the Óbuda Island and the bank of the river Danube are also very popular in terms of sports and leisure activities.

#### **Layer 4: General socio-economic, cultural and environmental conditions**

#### **CLIMATE CONDITIONS IN ÓBUDA-BÉKÁSMEGYER**

Regarding the **climatic conditions**, it can be stated that the climate of Óbuda-Békásmegyer is moderately warm and moderately dry. The average annual temperature is 11°C, the average temperature in the warmest month is 21°C, while the average temperature in the coldest month is -1.6°C.

The **heat island phenomenon** is often experienced in the district. Budapest is a wind-protected capital due to the Carpathians and the Transdanubian Mountains, so wind absence is common during the autumn and winter months, resulting in **fog formation**.

For the most part, the area is moderately water-scarce, but floods and inland water are at high risk due to the deep location and the presence of the Danube.

### **GREEN AREAS**

The 3rd district has a **high green space potential**, including a high proportion of residential green space.

### **NATURAL ENVIRONMENT AND AIR POLLUTION**

Óbuda-Békásmegyer is located in the north-eastern part of the capital, bordered on the west by the Buda Hills and on the east by the **river Danube**. The presence of the Danube in the district represents a development potential to be exploited in terms of social, economic and environmental well-being. The district presence of the **mountains** of the Buda Hills is decisive from an environmental point of view, which also means a direct connection with protected natural areas.

Due to its city gate function, the amount of traffic passing through is significant. The district is characterized by increasing concentrations of **airborne dust** (due to dehydration, traffic, winter-summer smog), increasing pollen concentrations, and hotter and more frequent summer heat waves due to the change of the climate.

## **6.4.2. Target population data analysis and conclusions**

### **a. Needs and Assets of the target population**

The 3rd District of Budapest, Óbuda-Békásmegyer is very committed to sustainable and healthy living. There are several initiatives focusing on climate change and environmental protection, but the city is especially engaged in project and initiatives to develop health care and the health status of the inhabitants, as well as addressing inequalities.

The target area includes mainly housing estates, which means the area is excellent in terms of infrastructure, which includes public utilities, transport infrastructure, social, educational and health institutions, leisure and

cultural institutions, as well as access to green areas. Both educational and health institutions have adequate capacity, although capacity expansion is needed in terms of nursery school places

There is a significant number of active **NGOs** in the district (approx. 300); they include organizations operating alongside institutions (e.g. school, kindergarten foundations), health and social organizations, cultural organizations, housing association organizations, and sports activity associations.

Based on the examination of the social stratification of the district, the population of the housing estates, and especially of the Békásmegyer area, differs significantly from the suburban population of the district in terms of more disadvantaged income conditions, education, but also cultural and consumption habits and lifestyle. Examining the complex index used in terms of lifestyle and quality of life, the health situation in Békásmegyer is particularly worrying, despite the fact that it is not the part of the district where most elderly people live. In Békásmegyer, 26% of inhabitants have a case of **hypertension**, while in other parts of the district this number is only 16%.

Local residents are generally low-educated, with 10% having no more than a basic education. Lower education also makes it significantly more difficult to find a job in the labour market. Slightly more than half of those of the working age population living in the target area is **employed**, 25.55% of them are employed in low-prestige employment groups. The proportion of the retired and inactive population is approximately the same. In Békásmegyer, the proportion of the older adults is very high, the value of the aging index is 235.86%, which is significantly higher than the district average.

Together, the lower level of education and the high proportion of the elderly mean that the housing estate in Békásmegyer is characterized by the lowest income category.

Here below are summarised the main needs and assets of the target population.

Table 20. Summary of Needs and Assets of the WUP target population (Óbuda-Békásmegyer)

NEEDS/ WEAKNESSES TO BE MINIMIZED THROUGH THE PROJECT	
<b>General sociodemographic context</b>	
Lower income than city average, with some specific areas plagued by poverty, bad housing, population in high degree of vulnerability (single-parent families, Roma people...)	
Aged population (aging index in Békásmegyer: 235.86%)	
<b>Layer 1: Individual lifestyle factors</b>	
Low level of education (10% have at most a primary education)	
Health problems stemming from/aggravated by Energy Poverty	
Population of the target area shows less healthy habits and a worrying state of health 26% of inhabitants have a case of hypertension (district average: 16%)	
<b>Layer 2: Social and community networks</b>	
Elderly inhabitants at risk of unwanted loneliness	
Main concerns of population: health issues, money	
<b>Layer 3: Living and working conditions</b>	
Unemployment rates significantly higher among women.	
Old housing in general, and specific poor and bad conditions in some areas where vulnerable people live	
Some energy saving measures already implemented in many households (low consumption light bulbs, etc.)	
Some energy measures - not enough - implemented across the city (e.g. insulating windows)	

Summer months are unbearable in the parts of the district with old housing District heating leads to very dry air in flats
More and more frequent heat waves
Area more vulnerable to effects of climate change
Inequal spatial distribution of green areas for population
Increasing concentrations of airborne dust (due to dehydration, traffic, winter-summer smog), increasing pollen concentrations
<b>ASSETS TO BE PROMOTED THROUGH THE PROJECT</b>
<b>Layer 1 Individual lifestyle factors:</b>
Generally good self-perception of health
<b>Layer 2: Social and community networks</b>
Strong neighbourhood identity and sense of belonging
Good associative network (cultural, social care, sports)
Good health infrastructure Good educational infrastructure Active district initiatives to promote health
Health and housing as important concerns for people
<b>Layer 3: Living and working conditions</b>
Satisfaction with the development of the neighbourhood
Good provision of health and social care services and Centres in comparison with other parts of the city Outdoors sports equipment free to use throughout the city
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>



Previous interventions and pilots in the area.
Strong local network of stakeholders to fight against social issues and Energy Poverty
Survey to map social crisis in the city (2014)
Current local government is very committed to health, wellbeing and sustainability

**b. Causes for Energy Poverty in the pilot area and effects on health. Why our target population ends up with Energy Poverty?**

According to the focus group interview in the target area, the main problems of the people living here include health problems (mental health, joint pain, high blood pressure, respiratory diseases) and the problem of mouldy walls and old, inefficient household appliances, as well as lack of information. The results of the focus group interview altogether lead to creating a whole new intervention, which is the energy modernization of the households.

Difficulties in obtaining information may be due to the insufficient communication and difficult-to-interpret information of the municipal workers on the one hand, and to the lower level of education, social isolation and the reproducing disadvantage on the other hand. Because lack of information fundamentally makes both conscious living and energy efficiency impossible, the development of communication will be a top priority for the district during the project period, and it will be especially important to focus on communicating with the elderly tenants.

The pathway or process that explains how people end up with Energy Poverty in all pilots can be summarised at the figure below. It also shows the effects of Energy Poverty in mental and physical health of people, some of them measured during the project for the research evaluation. The orange-coloured boxes are the areas where this specific WUP will intervene through its different actions, minimising needs and maximising assets of these fields. Please note that the outline of some boxes has also been coloured based on its corresponding layer in the social ecological model (see figure legend). Green boxes contain the measurements that all pilots will take during the project for evaluation purposes.

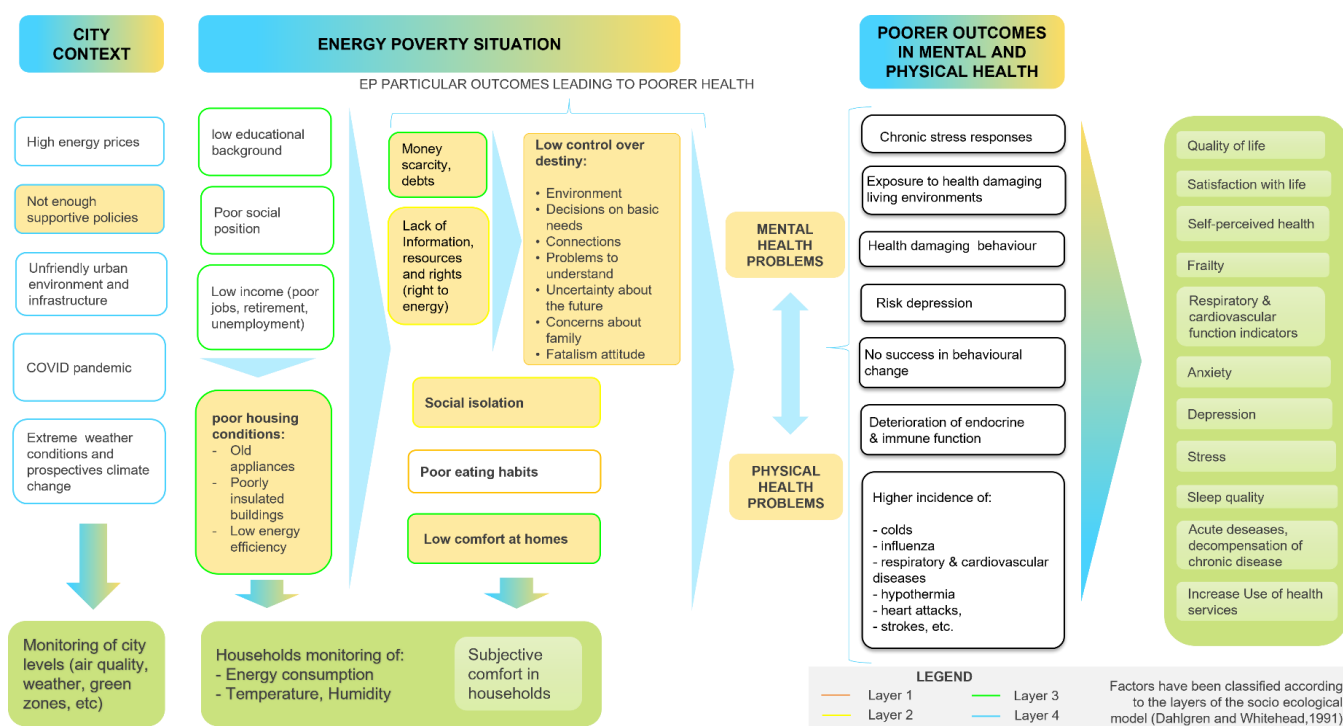


Figure 44. Óbuda - Békásmegyer pilot's pathway of Energy poverty causes and effects in health

## 6.5. Objectives of the WUP

### 6.5.1. Objective of the WUP

The WUP has been set up for the benefit of households whose members are of a vulnerable, disadvantaged social group and who are prevented from paying their bills and creating conditions for their well-being in their daily lives.

The main goal of the WUP is for households receiving interventions to lead their households more sustainable and lead a more conscious lifestyle as a result of the project. It is an important goal that the population involved spends less of their household income on offsetting overheads after the interventions, and that as little of their spending as possible is wasted (e.g. they should not pay for services they do not use), and that they do not incur costs that are not their responsibility to pay. It is also important for the households involved to be able to create the basic conditions necessary for their well-being - to be able to heat / cool the temperature of the apartment properly, to pay their bills and to get their medicines.

The basic condition for a conscious lifestyle is to ensure adequate information and access to information, so this as well is one of the goals of the WUP. We hope that after the installation of smart metres and the

energy modernization of households, as a result of energy efficiency trainings, the household management trainings and the attitude forming programs, participants will live more consciously. We believe that interventions such as the arrears management consulting, the community building programs, and most importantly, the health improving actions will lead to the improvement of the (mental) health status and the general well-being of the tenants.

#### **6.5.2. Tomorrow's newspaper**

To help envisioning the impact of the WUP, here below is an imaginary news in a fictitious newspaper talking about our project results in five years from now.

## Békásmegyer households have become more conscious regarding their consumption and household management habits



January 2027

*Following the EU project Wellbased (2021-2024), which aimed to raise awareness to the problem of Energy Poverty and its negative impact on health and wellbeing, and focused on finding potential solutions to the problem.*

*In the framework of the Wellbased project, 60 households received help in connection with energy efficiency and household management habits, and as a result, they became significantly more conscious and sustainable from both environmental and financial point of view. Interventions, among others, included energy efficiency trainings, household management trainings, attitude forming programs, health improving actions, as well as the energy modernization of households and installing smart metres in dwellings.*

*The main added value of these metres is that they can continuously monitor the consumption of individual households. Lower consumption without losing comfort has contributed greatly to sustainability, not only from an environmental but also from an economic point of view.*

*A further advantage of using the device is that it can easily raise awareness to problems related to unreasonably high or low consumption, and has also helped to eliminate phantom consumption. At the same time, smart meters also support the work of common representatives.*

*For Zsuzsanna, a participant of the project, smart metres were one of the most useful interventions of Wellbased:*

*"Since I've been able to track my consumption in real time, I've been consuming a lot more consciously. I've set a goal for myself and I can keep track of how this process is going. I always try to consume a little less, both to save energy and to save money. This also has a great impact on my mental health, as I am less anxious about the bills, while my home is even more comfortable than before."*

## 6.6. Overview of Actions

The following actions will be performed during the pilot project (detailed in 6.8.):

LIST OF WUP MAIN ACTIONS
<b>Layer 1: Individual Lifestyle factors</b>
1. Energy audits 2. Arrears management consulting 3. Energy efficiency trainings 4. Household management trainings 5. Health improving actions
<b>Layer 2: Social and Community networks</b>
6. Attitude forming programs 7. Community building programs
<b>Layer 3: Living and working conditions</b>
8. Installing smart metres 9. Energy modernization of households
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>
10. Engagement of stakeholders on different levels, in order to impact policymaking

## 6.7. Impact indicators

### 6.7.1. General impact indicators

The table below shows information about how the pilot will collect the general impact indicators established for the project.

Variable	Instrument/indicator	Data Source	Data collection
Sociodemographic details: age, sex, gender, occupation, etc.	Ad-hoc questionnaire	Online* questionnaire for data collection	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: .....

Health and wellbeing measures			
Quality of Life	Quality of Life (HRQoL)	Online version of the clinical standardised questionnaires	<input type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants
Satisfaction with life	Satisfaction with Life Scale (SWL)		
Mental health: Depression	Depression and Anxiety Stress Scales (DASS/BSI)		
Mental health: Anxiety			
Mental health: Stress			
Self-perceived health	SF-12 Health Survey (SF12)		
Frailty	Self Perceived Multidimensional Impairment Index (SELFY-MPI)	Online version of the clinical standardised questionnaire	<input type="checkbox"/> Other: .....
Subjective comfort in households	Self-reported scale <sup>47</sup>		
Respiratory & cardiovascular function indicators	Peak flow measurement	IoT Home health control devices, real time monitoring	<input type="checkbox"/> Manual collection <div>i) <input type="checkbox"/> Directly by participants</div> <div>j) <input type="checkbox"/> By another stakeholder</div> <input type="checkbox"/> Collection through wearables devices  <input checked="" type="checkbox"/> Other: Depending on the circumstances, both manually and through wearables
	SpO2 measurement		
	Blood pressure measurement		
	Sleep quality measurement		
Incidence of the acute diseases	Number of Diagnosed acute diseases	Electronic Health Records direct extraction and/or online questionnaire	<input checked="" type="checkbox"/> Direct extraction  <input type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: .....
Decompensation of chronic disease	Number of diagnosed exacerbations, all health settings (Emergencies, acute units, hospitalisation, primary care)		
Readmissions	Admissions in the ED (emergency department), acute units or regular hospitalisation		
Use of primary attention services	Visits to the primary attention services distinct from those aimed at renewing the prescriptions		

<sup>47</sup> Frontczak, M., Andersen, R. V., & Wargocki, P. (2012).

Life experienced	Impressions, comments, experience and subjective perceptions captured in focus groups and interviews & codified	Qualitative analysis codified records	Partner responsible (UNIVLEEDS) will provide the methodology and keep the data collected
Energy efficiency evaluation			
Energy consumption	Yearly Kw/day	Energy providers (DSOs) App	Through smart metres
Household income spent on energy	% of income/Euros	Online questionnaires	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: .....
Household conditions: temperature	Celsius Degree	IoT DT home sensors, real time monitoring	Definition in progress. To be detailed in D3.1
Household conditions: humidity	% Relative humidity		
Household conditions: air quality	CO2 and CO concentration		
City pollution	CO1, CH4, N2O, PM	SmartCity Open platforms (city-level/local data) Secondary sources (city reports, etc.)	Yet to be defined
City air quality	CO1, CH4, N2O, PM, soot & smoke (wildfires, urban fire), specific gases, dust, etc.		
City weather	Rain rays per year, Floods reported per year, Extreme heat days (>30°C) per year, Days below >5°C per year, Average temperatures, per season		
City climate	Comparison between these measures and the 10-previous-year reports and the 25-previous-year reports		
City green spaces	Green spaces (m2) per km2 Existence, localisation and length of <i>urban heat islands</i> Trees and parks or any other green space (m2) in <i>urban heat islands</i> (km2), if any		

### 6.7.2. Pilot Specific indicators

The following indicators will be specifically collected for our pilot.

PILOT SPECIFIC INDICATORS		
DESCRIPTION	KPI	DATA SOURCE
<b>Participants' recruitment</b>		
Female participants in the intervention group	Min 50% (74)	Project reporting
Roma participants in the intervention group	Min 10% (15)	Project reporting
Older one-member households in the intervention group	Min. 2	Project reporting
<b>Layer 1: Individual Lifestyle factors</b>		
Energy efficiency trainings	Min. 3	Project reporting
Household management trainings	Min. 2	Project reporting
<b>Layer 2: Social and Community networks</b>		
Energy efficiency trainings for key actors	Min 15 people included	Project reporting
Attitude formation programs	Min. 2	Project reporting
Community building program	Min. 2	Project reporting
<b>Layer 3: Living and working conditions</b>		
Inefficient household appliances replaced	based on needs	Project reporting
Smart metres installed	1 / household	Project reporting
Energy refurbishment	based on needs	Project reporting
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>		
Conference for stakeholders – local stakeholders	min. 3	Project reporting
Conference for stakeholders – professional level	min. 2.	Project reporting



## 6.8. WUP Detailed planification

ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 1.</b> Energy audits	
Description	
<p>The first step for individual interventions, after the recruitment process, is to perform an energy audit to assess the participants' home's energy situation related to energy use, consumption, appliances, etc. outlining all the specifics. This will help the participant to identify where his/her home is losing energy and what steps he/she can take to improve energy efficiency. The starting point for deepen into the participants' current situation is to pass a comprehensive questionnaire, which will help us design a tailored intervention, which responds to his/her actual needs.</p> <p><b>When?</b> Once the participant has enrolled in the project, making sure that fulfils the inclusion criteria.</p> <p><b>Where?</b> Mainly at the Family Counselling and Child Protection Centre, or for special cases, at the home of the participant.</p> <p><b>How?</b> By fixing a face-to-face appointment with the participant, during which a comprehensive questionnaire will be filled.</p>	
Outcomes of the action	
<ul style="list-style-type: none"> <li>• To have deep knowledge on participants' profiles regarding energy use and socio-health particularities.</li> <li>• To provide with baseline information, helpful for deciding next steps and designing a customized intervention plan to cover participant's actual necessities.</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)

<ul style="list-style-type: none"> <li>• Óbuda-Békásmegyer Urban Development Plc.</li> <li>• Óbuda Family Counseling and Child Protection Centre</li> <li>• Energiaklub NGO</li> </ul>	Energy audits will be performed throughout the first part of the intervention period, as it corresponds to the first action of the individual intervention plan. Estimated M18-M24.
<b>Budget and resources</b>  <b>(from Wellbased project or from other sources)</b>	
<p>The resources for deploying this action are the ones used currently in the Family Counselling and Child Protection Centre, but it will also be partly financed from the Wellbased project, and from municipal sources, if needed.</p>	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 2.</b> Arrears management consulting
Description
<p>Several households are struggling with arrears or are in a debt spiral, but not all households are affected by this problem. In order to deal with and resolve the existing problem and to prevent similar difficulties, the colleagues at the Family Counseling and Child Protection Centre will develop a professional program aiming to help those affected and offer efficient solutions for this problem.</p> <p><b>When?</b> Participants will be informed about this opportunity from time to time, mainly in the first half of the intervention period. The service will be available throughout the project period and beyond.</p> <p><b>Where?</b> Mainly at the office of the Family Counseling and Child Protection Centre, or for special cases, at the home of the participant.</p>
Outcomes of the action

<ul style="list-style-type: none"> <li>Dealing with and resolving a very stressing and difficult-to-overcome problem.</li> <li>Informing tenants about who to turn for help to.</li> </ul>	
<b>Stakeholders involved</b>	<b>Period it covers</b> (develop it on the next chart)
<ul style="list-style-type: none"> <li>Óbuda Family Counseling and Child Protection Centre</li> </ul>	The service will be available throughout the project period and beyond.
<b>Budget and resources</b> (from Wellbased project or from other sources)	
<p>The resources for deploying this action are the ones used currently in the Family Counseling and Child Protection Centre, which will be strengthened thanks to the sources of the Wellbased project (personnel costs).</p>	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 3.</b> Energy efficiency trainings
Description
<p>Energy efficiency trainings will be organized for all households involved in the project by an NGO with professional experience in this field (still to be defined), and a complex and interactive material will be developed specifically for the tenants. Training materials will continue to be available after the series of events.</p> <p><b>When?</b> Three events will be held in the first half of the intervention period, each event will last for two hours.</p> <p><b>Where?</b> At a community space near the homes of the participants.</p>

<b>How?</b> By fixing a face-to-face appointment with the participants, during which a complex, interactive training material will be presented, and participants' knowledge will be assessed.	
<b>Outcomes of the action</b>	
<ul style="list-style-type: none"> <li>The action will lead to more consciousness regarding energy efficiency and consuming.</li> <li>Informing tenants about who to turn for help to.</li> </ul>	
<b>Stakeholders involved</b>	<b>Period it covers</b> (develop it on the next chart)
<ul style="list-style-type: none"> <li>Energiaklub NGO</li> <li>Óbuda-Békásmegyer Urban Development Plc.</li> <li>Óbuda Family Counselling and Child Protection Centre (if needed)</li> </ul>	Energy efficiency trainings will take place at the first half of the intervention period. Estimated M19-M26.
<b>Budget and resources</b> (from Wellbased project or from other sources)	
The task is planned to be financed from the Wellbased project. According to an indicative offer on the training, the estimated cost is 1,905,000 HUF (5,163.78 EUR).	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 4.</b> Household management trainings
Description
Household management trainings will be organized for all households involved in the project by the Family Counselling and Child Protection Centre. They will revive a professional program developed by them earlier, which proved to be interactive and efficient. They already have much professional

experience in this field, have an active relationship with most tenants and have built confidence with them.

**When?** Trainings will be held throughout the intervention period. The complete time requirement of the trainings will equal 25 hours.

**Where?** At a community space near the homes of the participants.

**How?** Interactive trainings will be held face-to-face with participants, in smaller groups of approx. 10-12 participants at once.

Outcomes of the action	
<ul style="list-style-type: none"> <li>The action will lead to more consciousness regarding energy efficiency and consuming.</li> <li>Experience with colleagues at the Family Counselling and Child Protection Centre, information on who to turn for advice to.</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)
<ul style="list-style-type: none"> <li>Óbuda Family Counselling and Child Protection Centre</li> </ul>	Trainings will be held throughout the intervention period. Estimated M18-M30.
Budget and resources (from Wellbased project or from other sources)	
The resources for deploying this action are the ones used currently in the Family Counselling and Child Protection Centre, which will be strengthened thanks to the sources of the Wellbased project (personnel costs).	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 5.</b> Health improving actions
Description

In order to improve the participants' state of health significantly, several healthcare-related activities were assigned, apart from health screening.

The operation of patient clubs is planned, at least in the field of cardiovascular diseases, hypertension or diabetes. Patient clubs methodologically combine the essence of self-help groups with specialist-led / moderated groups. Their aim is to help patients living together with their chronic illness and to support them in lifestyle changing. Their main task is to perform lifestyle, tertiary prevention tasks and provide information.

To reach and include as many people as possible, virtual, on-line clubs can be set up.

Programs aimed at keeping the elderly in the community, preserving and developing their mental and physical activity will also be implemented. The primary goal is to change the inactive lifestyle of the elderly, help prevent obesity as well as chronic diseases such as cardiovascular disease, diabetes and high blood pressure. Another goal is to prevent the development of dementia and to avoid psychiatric symptoms, especially depression.

Activities to improve the state of mental health will also be included. The aim is to treat mental health issues, such as depression and anxiety with professionals, to prevent participants from burnout, to create opportunities for recreation, relaxation and recharging.

**When?** Throughout the whole intervention period, at specified intervals.

**Where?** At a community space near the participants' homes.

Outcomes of the action	
<ul style="list-style-type: none"> <li>Significantly improved state of health and mental health</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)
<ul style="list-style-type: none"> <li>Óbuda Outpatient Health Service</li> <li>Health Development Office</li> </ul>	Health improving actions will be organized throughout the whole intervention period.
Budget and resources	

(from Wellbased project or from other sources)
The resources for deploying this action are the ones used currently in the Óbuda Outpatient Health Service and Health Development Office, which will be strengthened thanks to the Wellbased project sources.

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 6.</b> Attitude forming programs
Description
<p>The district has always considered attitude formation very important, therefore already has much experience in this field. Because these programs focused overall population and were not specifically made for the difficult-to-reach group, this whole program will be improved and tailored to the needs of the target group.</p> <p>Interactive attitude-forming events are to be held, informal outdoor events are to be organized, lectures and demonstrations could be done. There are several community programs for the whole neighbourhood, which could work as an excellent platform for the above-mentioned activities and could reach lots of people at the same time. These community events are planned for all age groups, and include cultural performances and concerts, attitude forming and community building programs and sports.</p> <p>Attitude forming events specifically for children would also be organized, including tales, cartoon and puppetry.</p> <p><b>When?</b> Bigger events could be held at least twice, when the intervention period starts, and during the intervention period.</p> <p><b>Where?</b> At a community space near participants' homes.</p>
Outcomes of the action

<ul style="list-style-type: none"> <li>• Raising awareness to the problems of Energy Poverty, sustainability and climate change</li> <li>• More conscious consumption and household management</li> </ul>	
<b>Stakeholders involved</b>	<b>Period it covers</b> (develop it on the next chart)
<ul style="list-style-type: none"> <li>• Óbuda-Békásmegyer Urban Development Plc.</li> <li>• NGOs (e.g. Bábozd Zöldre Környezeti Nevelési Egyesület)</li> </ul>	Attitude forming programs will be held throughout the intervention period.
<b>Budget and resources</b>  (from Wellbased project or from other sources)	
<p>The resources for deploying this action are the ones used currently at Óbuda-Békásmegyer Urban Development Plc., might be strengthened by the Wellbased project sources (most likely from budget line for communication costs), depending on the involved stakeholders.</p>	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 7.</b> Community building programs
Description
<p>The district has always considered community building very important, therefore already has much experience in this field. Because these programs focused overall population and were not specifically made for the difficult-to-reach group, this whole program will be improved and tailored to the target group.</p> <p>Two bigger community building events are planned, once at the beginning of the intervention period, and once during that. The exact programs and themes are yet to be defined. Smaller events could be organized several times throughout the intervention period.</p>



**When?** Bigger events could be held at least twice, when the intervention period starts, and during the intervention period.

**Where?** At a community space near participants' homes.

Outcomes of the action	
<ul style="list-style-type: none"> <li>• Building a stronger community</li> <li>• Improving mental health</li> <li>• Improving some sorts of social problems</li> <li>• Having a safer and more comfortable residential community, leading to an overall feeling of safety and comfort</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)
<ul style="list-style-type: none"> <li>• Óbuda-Békásmegyer Urban Development Plc.</li> </ul>	Community building programs will be held throughout the intervention period.
Budget and resources (from Wellbased project or from other sources)	
The resources for deploying this action are the ones used currently at Óbuda-Békásmegyer Urban Development Plc., might be strengthened by the Wellbased project sources, from budget line for communication costs.	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 8.</b> Installing smart metres
Description

A somewhat more technical part of the attitude formation of the participants is installing smart metres. The district already has great experience with smart metres, and they proved to be very efficient and useful.

It is planned that all participating flats will be equipped with these devices, to monitor the household's water, electricity and fuel consumption. Participants, in addition, will also be able to see and monitor their own consumption.

**When?** Once the participant has enrolled the project, making sure that fulfils the inclusion criteria.

**Where?** At the homes of participants. A data concentrator will be installed at the City Hall.

Outcomes of the action	
<ul style="list-style-type: none"> <li>• More consciousness regarding consumption and household management patterns</li> <li>• Environmentally and economically more sustainable consumption</li> <li>• Raising awareness to problems related to unreasonably high or low consumption</li> <li>• Eliminating phantom consumption</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)
<ul style="list-style-type: none"> <li>• Contractor</li> <li>• Óbuda-Békásmegyer Urban Development Plc.</li> <li>• Óbuda Asset Management Ltd.</li> </ul>	<p>Devices will be installed right after the enrolment of participants.</p> <p>Estimated M18-M20.</p>
Budget and resources (from Wellbased project or from other sources)	
<p>The activity will be financed from the Wellbased project, from the budget line set up for equipment and technical support.</p>	

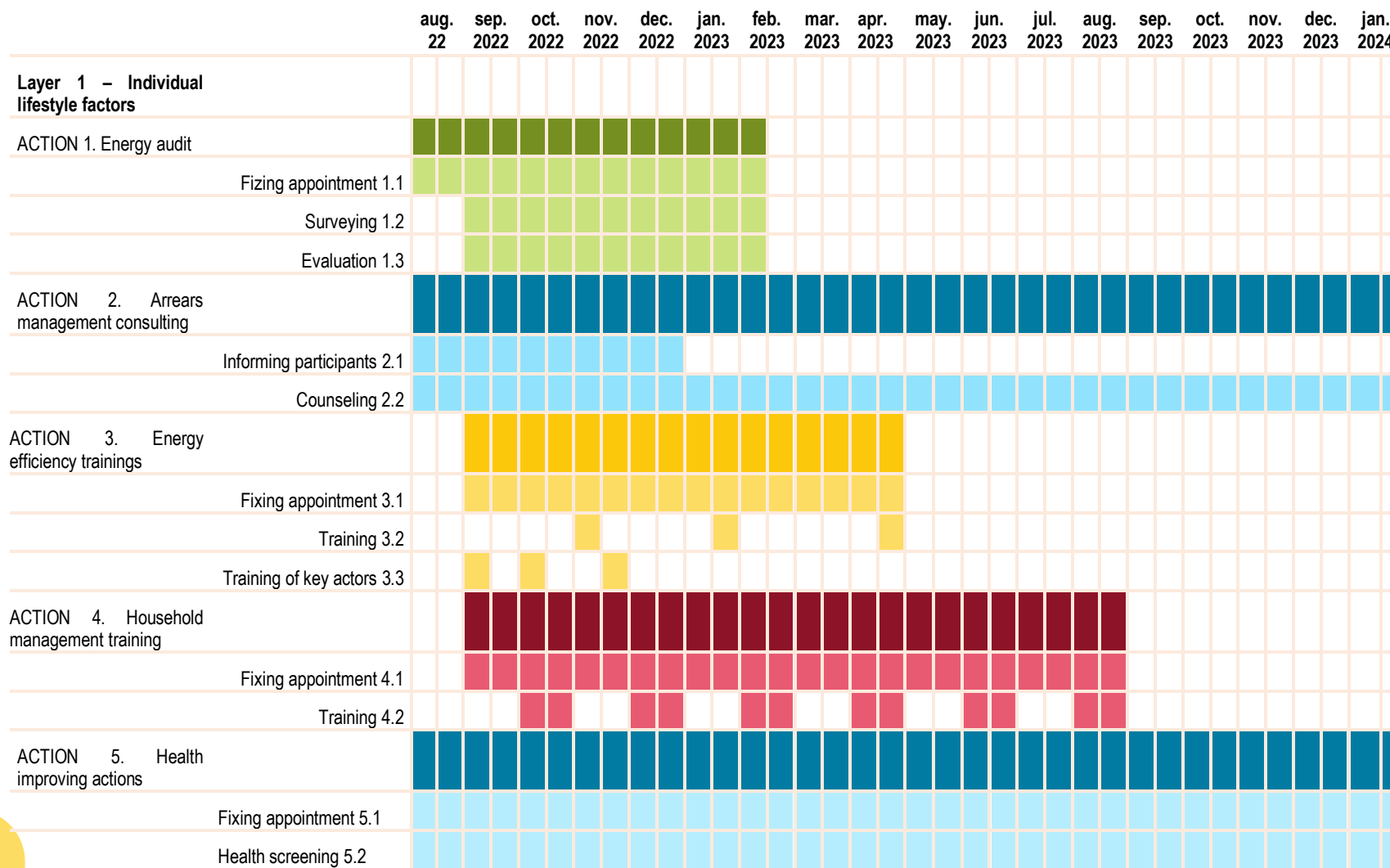
ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 9.</b> Energy modernization of households	
Description	
<p>Based on the information we have gathered through the focus group interview and the additional interviews, it became very clear that most households were struggling with the small-scale energy modernization of their homes, but these dwellings were unsustainable regarding energy consumption.</p> <p>As a first step, households will be examined and tenants will be asked for more insight, before deciding about the exact manners and tools to modernize the households. There will not be a common method or device, all households will receive this intervention tailored to their needs. This may include treating the problem of inadequate cooling-heating, ventilation, damp, replacement of broken, old or inefficient household appliances.</p> <p><b>When?</b> The intervention will be carried out throughout the intervention period.</p> <p><b>Where?</b> At the home of the participants.</p>	
Outcomes of the action	
<ul style="list-style-type: none"> <li>• Significantly improved state of (mental) health</li> <li>• More energy efficient households</li> <li>• Less phantom consumption</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)
<ul style="list-style-type: none"> <li>• Óbuda-Békásmegyer Urban Development Plc.</li> <li>• Óbuda Asset Management Ltd.</li> <li>• Óbuda Family Counseling and Child Protection Centre (if needed)</li> </ul>	<p>Socio-energy audits will be performed throughout the first part of the intervention period, as it corresponds to the first action of the individual intervention plan. Estimated M18-M24.</p>

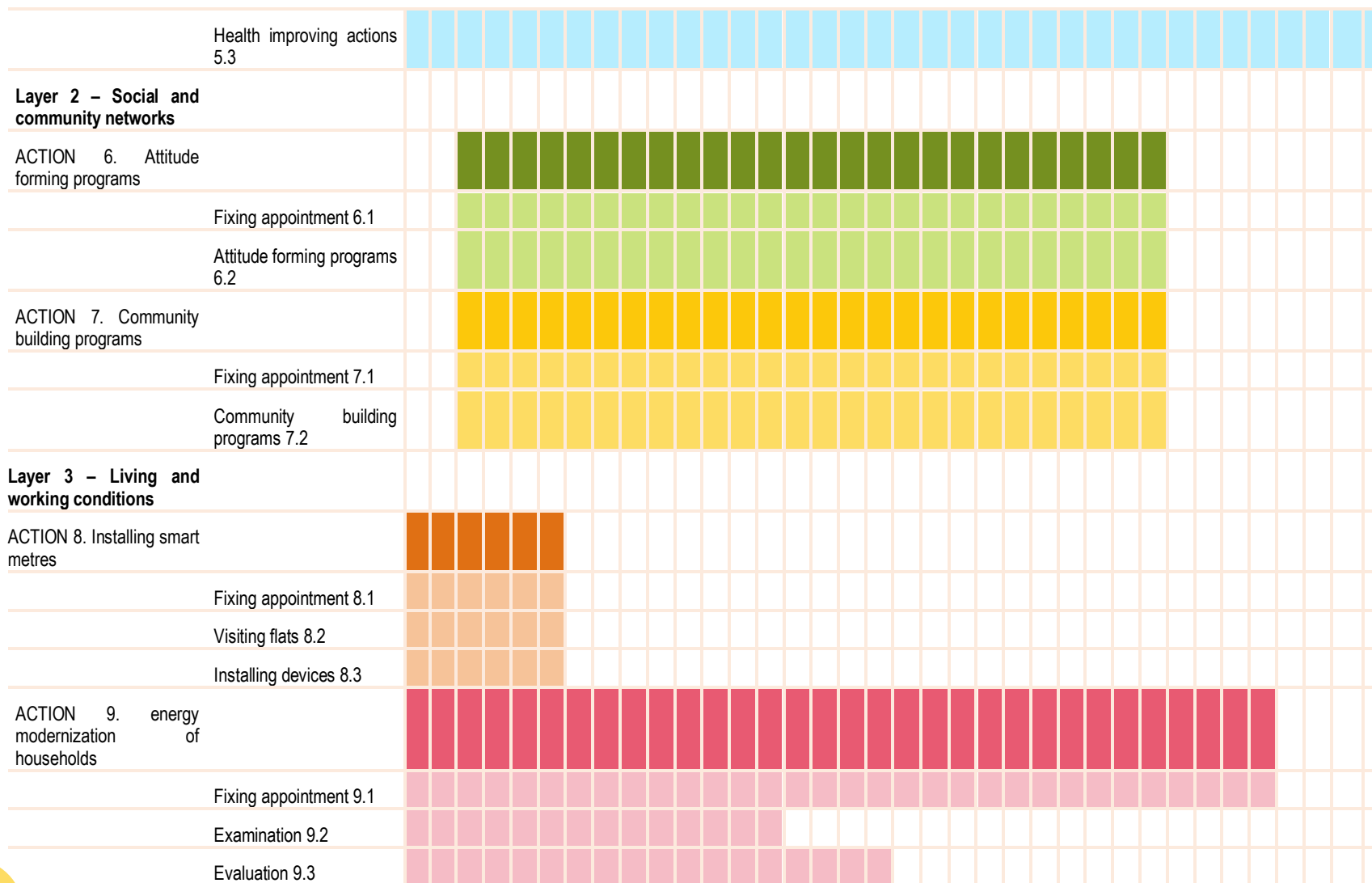
Budget and resources (from Wellbased project or from other sources)
The intervention will be financed from the Wellbased project, and from own municipal sources if needed.

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 10.</b> Engagement of stakeholders on different levels, in order to impact policymaking
Description
<p>The Municipality will produce a stakeholder analysis, assess their needs and expectations, and develop a detailed methodology and schedule to involve them. Partners will organise stakeholders both on professional and local levels, depending on their relevance and field of functioning.</p> <p>Local stakeholders, such as owners, tenants and representatives of residential buildings, institutions (Óbuda-Békásmegyer Urban Development Plc., Óbuda Family Counseling and Child Protection Centre, Óbuda Asset Management Ltd.), NGOs (EnergiaKlub) will be involved at local level. Meetings will be organized 2-3 times during the intervention period, to ensure their involvement. Targeted communication will be vital to reach these entities and the general public.</p> <p>Professional stakeholders will contribute to the intervention concept at the project level, and afterwards, will play a key role in impacting policymaking. They will be involved in 2 meetings (1 at project start-up, 1 after the intervention period). Key stakeholders are companies and NGOs, knowledge centres, such as: Budapest District Heating Works, Budapest Sewerage Works, Budapest Waterworks, Városkutatás Kft., Hungarian Energy Efficiency Institute, Óbuda University, Budapest University of Technology and Economics, Municipality of the City of Budapest.</p>
Outcomes of the action
<ul style="list-style-type: none"> <li>Awareness raising, impact on policymaking and decision-making</li> </ul>

Stakeholders involved	Period it covers (develop it on the next chart)
Local and professional stakeholders, listed above	Meetings will take place throughout the intervention period.
Budget and resources (from Wellbased project or from other sources)	
Wellbased source and municipal sources, if needed.	

Table 21. Timeline of WUP (Óbuda-Békásmegyer)









# Chapter 7: Skopje (North Macedonia)

## 7.1. Overview of the WUP



URBAN PROGRAM

PILOTSITE  
**SKOPJE**  
(Macedonia)

**PERIOD** Pilot activities: 12 months  
(AUG 2022/JAN 2023 to JUL 2023/DEC 2023)<sup>1</sup>  
+ follow-up audit 6 months after the  
end of the project activities

**RESPONSIBLE  
AUTHORITY** City of Skopje (SKO)

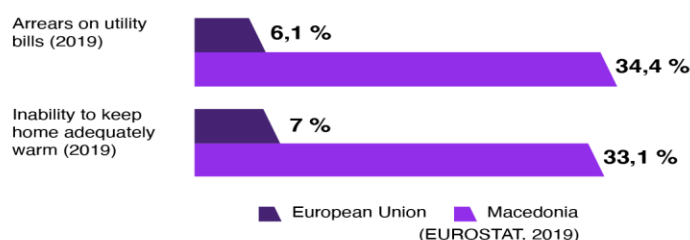
**OTHER KEY  
STAKEHOLDERS** Mostly internal team of City of Skopje (e.g. **Energy Efficiency Office**) and some other local organiza-  
tions still to be defined

### THEMATIC SCOPE

#### MACEDONIA: ENERGY POVERTY COUNTRY DATA

- Up to two thirds of the population may suffer from some form of EP
- 25% are not able to heat their homes properly (EU average of 7.3%)
- Over 40,000 households had problems paying their electricity bills (2014)
- 35% of households struggle to keep up with the payment of electricity and heating bills
- 85% of the buildings were built between 1950 and 1990, before energy efficiency measures
- About 80,000 households still lack long-term housing solutions, and 12% of the housing stock is substandard

#### Performance relative to EU average



#### SKOPJE: SOCIAL CONTEXT OF THE CITY

- Total population: over 500,000 (2002)
- 12.7% of the population is over 65
- Ethnic origin: 66% Macedonians, 20% Albanians (+ others: Romani, Serbs, Turks, Bosnians, Aromanians)
- Largest Roma community in Europe
- Significant migration from rural to urban areas
- Unemployment rate: 16.2% (EU average: 6.7%)
- 41.1% of the population is at risk of poverty or social exclusion (EU average: 21.8%)
- 16% university graduated (country average: 10%)
- Diversity of religions (main ones: Orthodox and Islam)

#### Energy poverty and housing local conditions

In the most vulnerable neighbourhoods, housing conditions are very poor and central heating system is not installed. Housing conditions are particularly critic for Roma households.

#### NATIONAL CURRENT POLICY TO TACKLE ENERGY POVERTY

- Reduction of the monthly bill for consumed electricity (should cover about 7,500 households for a period of 12 months)
- Energy Poverty national program

#### INTEGRATION IN MUNICIPAL ACTION PLANS AND OTHER LOCAL PROJECTS

- Subsidies for pellets, bikes and chimney cleaning (budget from city annual budget) and for inverters (budget from EP national program)

<sup>1</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)

### TARGET POPULATION

#### INTERVENTION AREA

City of Skopje

#### TOTAL POPULATION

over 500,000 (2002)

#### VULNERABLE POPULATION

Single parents, person with disabilities, senior citizen, temporary workers, self-employed workers, people with low-wage jobs, first-line workers (transport, supermarkets, retail and police), homeless people, drug addicts, people in poor health and other vulnerable groups.  
Vulnerable neighbourhoods: Topansko Pole - Roma settlement in the center of the City and Shuto Orizari with mainly Roma people.

#### NUMBER OF WUP PARTICIPANTS

(under definition)

### MAIN EP SOCIAL DETERMINANTS OF HEALTH IN WUP TARGET POPULATION<sup>2</sup>

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#### CITY INFRASTRUCTURE

- ☺ Free public areas and parks of the city to do exercise and recreate

#### MUNICIPALITY COMMITMENT

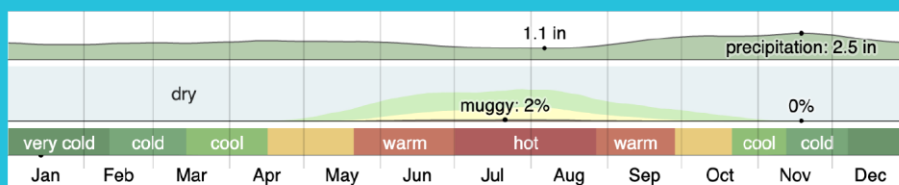
- ☺ Subsidies from the government to help with prices rise

#### ENERGY PRICES

- ☹ Increase of 9,5% in January 2022

#### WEATHER AND AIR CONDITIONS

- ☹ Very cold winters (up to -15°C)
- ☹ Very hard summers (up to 40°C)



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#### WORKING CONDITIONS

- ☹ Low income level
- ☹ Main concern and focus of population: money and finding job
- ☹ High unemployment rate (15,7%), mostly in women

#### HOUSING CONDITION

- ☹ Old housing and some in poor conditions
- ☹ Many houses in vulnerable neighbour-

- ☹ hoods without central heating system
- ☹ 12% of the housing stock in the city is substandard

#### EDUCATION

- ☹ Lower educational background/level
- ☹ Challenging access to education for Roma children: 18,7% do not attend primary education and 52,8% secondary education

- ☹ Difficulties getting familiarized with the open calls and filling up the documentation needed

#### OTHER LIVING CONDITIONS

- ☹ Some of the targeted population do not have legal documentation and/or not eligible for subsidies (bikes, inverters for heating/cooling)

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#### UNWANTED LONELINESS AND SOCIAL ISOLATION

- ☹ Population at risk of social distancing, aggravated with COVID
- ☹ Population not able to mix and socialize with other groups (higher or different lifestyle status)
- ☹ Loneliness
- ☹ Roma population - mostly isolated

#### UNHEALTHY / HEALTHY LIFESTYLES AND HABITS

- ☹ Worse health status than average
- ☹ Life expectancy 10 years shorter
- ☹ Less immunization coverage, regular health exams (e.g. women during the reproductive period), and health information access

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- Not specially aged population
- Significant Roma population



### OBJECTIVE

- **Increasing public awareness on energy efficiency.** There is a need to adapt the ways in which energy is used in households, so energy consumption is reduced and the pollution associated limited.
- **Educating about proper use of energy and housing** to households, local self-government, stakeholders and the government, through specific educational programs led by psychologists, social workers, innovators and associations for supporting of marginalized groups.
- **Conducting a survey and energy audits covering 100 households** in the city of Skopje from different vulnerable categories of citizens, with the aim of collecting information that will form policy proposals for combating energy poverty in the City and establish a correlation between impaired health status and energy poverty.
- **Realising a case study** (with help of other partners, cities and/or institutions) to assess energy consumptions and habits



in homes more or less energy efficient through sensors devices.

- **Integrating energy poverty into the local energy efficiency and social protection program**, which should be designed to be fully accessible to those in need.

### ACTIONS & PILOT-SPECIFIC RESULT INDICATORS

### PILOT-SPECIFIC RESULT INDICATORS

#### LAYER 1 · Individual Lifestyle factors

- Survey and energy audits
- Education for proper use of energy and housing

No pilot-specific result indicators

#### LAYER 2 · Social and Community networks

#### LAYER 3 · Living and working conditions

#### LAYER 4 · General socio-economic, cultural and environmental conditions

- Campaign to increase public awareness on energy efficiency

### WUP INTERVENTION IN MAIN EP SOCIAL DETERMINANTS OF HEALTH<sup>3</sup>

LAYER 0	LAYER 1	LAYER 2	LAYER 3	LAYER 4
Due to the sociodemographic characteristics of the target population and/or the WUP focus, a special impact is expected on:	HEALTHY LIFESTYLES AND HABITS	ASSOCIATIVE NETWORK	UNEMPLOYMENT LEVEL	ENVIRONMENTAL AND WEATHER CONDITIONS
AGED POPULATION	ENERGY EFFICIENCY HABITS	KEY COMMUNITY ACTORS AND PROFESSIONALS	FINANCIAL SITUATION, INCLUDING DEBTS	CITY INFRASTRUCTURE (GREEN ZONES, BIKELANES...)
LARGE FAMILIES	MENTAL HEALTH AND ATTITUDE	UNWANTED LONELINESS/ SOCIAL ISOLATION	STRUCTURAL HOUSING CONDITIONS (INSULATION...)	SUPPORTIVE POLICIES AGAINST EP
SINGLE PARENTS			ENERGY EFFICIENCY MEASURES AT HOME	GENERAL PUBLIC AWARENESS
FAMILIES WITH NO CHILDREN			FORMAL EDUCATION LEVEL	ENERGY PRICES

## 7.2. Identification of the WUP

- **Title**

Wellbased Urban Programme in the City of Skopje<sup>48</sup>

- **Period it covers**

Pilot activities: 12 months (from August 2022/Jan. 2023 to July 2023/Dec. 2023)<sup>49</sup>

+ follow-up audit 6 months after the end of the project activities

- **Responsible authority**

City of Skopje

- **Stakeholders and their responsibilities**

- The City of Skopje will coordinate and monitor the activities.
- The implementation of the activities will be conducted with the help of our Energy Efficiency Office.
- Our staff is contacting local organizations that will be our support with the pilot, but mostly due to the tight budget all of the activities will be conducted by our staff.

## 7.3. Thematic scope of the WUP

### 7.3.1. Social context of the city

North Macedonia has one of the highest rates of unemployment, poverty and social exclusion in Europe. These conditions, together with poor infrastructure, rising energy prices and government inaction, mean that a worrying large number of people are facing Energy Poverty. The inability to properly heat homes, prepare a hot meal and maintain personal hygiene is a reality for many Macedonians. Unfortunately, any attempt so far to resolve this issue is largely inappropriate.

High Poverty and Unemployment Rates in North Macedonia contribute greatly to the deterioration of Energy Poverty. A staggering 41.1% of the population is at risk of poverty or social exclusion, which is almost twice

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<sup>48</sup> Please note that the city of Skopje will not implement the pilot during the lifetime of the project. However, it will participate in the preparatory activities following the same procedures than the rest of pilots, obtaining a feasibility study to pave the way and facilitate the future deployment of the programme in the city.

<sup>49</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)

as high as the EU average of 21.8%. Current research shows that 16.2% of Macedonia citizens in the country are unemployed, compared to 6.7% EU average. Although the unemployment rate has dropped significantly over the years, the chances that these data do not reflect the real picture of unemployment are quite high since no official census has been conducted in the country since 2002. Without a true picture of the population, there is no way to find out what is the impact on the unemployment rate of the number of young people who are already in the category of able-bodied people from the last census until now, as well as the large number of people who have emigrated.

The inability to heat living spaces is one of the main problems with energy in North Macedonia. In 2014, over 40,000 households had problems paying their electricity bills, and the main gas distributor saw a 30% dropped in customer service between 2007 and 2014. Part of the growing number of consumers and large households whose households are not connected to the district heating network in the country have no choice but to switch to other forms of heating, such as solid fuel stoves that do not heat properly and create pollution of air that has significant health consequences. About 35% of households struggle to keep up with the payment of electricity and heating bills.

In 2018, Almost 25% of Macedonians said they could not heat their homes properly, compared to the EU average of 7.3.

The condition of many buildings and homes in the country is another contributing factor to Energy Poverty. About 85% of them were built between 1950 and 1990, at a time when there were no laws or energy efficiency measures. The condition of these buildings makes it difficult to maintain them well insulated and generally suitable for living.

### **7.3.2. Energy poverty data**

The general consensus is that Energy Poverty is caused by a combination of low incomes, inefficient housing (as expressed by the thermal efficiency of the built fabric, as well as the efficiency of appliances and heating systems in the home) as well as high energy prices. The energy needs of a household – expressed via demographic circumstances such as household size, gender, occupation or class – have also been shown to play a role. Households with children or pensioners typically are more vulnerable to Energy Poverty. Also important is the nature of housing tenure and heating system, since they may limit the energy efficiency interventions and fuel switching measures that can reduce energy costs. For example, household may be trapped in arrangements that do not allow them to switch to cheaper fuels (such as moving to gas or solid fuels from district heating and electricity).



In Macedonia, it has been estimated that up to two thirds of the population may suffer from some form of Energy Poverty. This is confirmed by self-reported data on household well-being issued and analysis of household expenditure surveys by the National Statistical Office. Energy efficiency measures in the residential sector are by far the most effective means of reducing Energy Poverty. Small-scale local renewable energy has also provided a good solution. While some energy efficiency measures may have high upfront costs, it has been shown that in the long run they can both save energy and improve the wellbeing of low-income households.

### **7.3.3. Current policy to tackle Energy Poverty**

There is a Government program for vulnerable energy consumers for 2022 under which the most vulnerable categories of people with low incomes that do not receive the guaranteed assistance according to law will receive financial assistance, reduction of the monthly bill for consumed electricity in the amount of 600 denars or 800 denars per month, depending on the size of the household. The program envisages 60 million denars or about one million euros and according to estimates should cover about 7,500 households for a period of 12 months. Financial support will be granted to individuals if their regular monthly income does not exceed the net income, for a single to a minimum wage, for a household with two members up to 18,000 denars (300 EUR), for a household of up to three members up to 21,000denars (350 EUR), for a household with four members up to 25,000 denars (400 EUR) and for a household of five members or more up to 30,000 denars (500 EUR). Low-income persons for single, household with two members and for household up to three members are acquired by reducing the monthly bill for consumed electricity in the amount of 600 (10 EUR) denars per month, and low-income persons for households with four members and for households with five members or more acquire the right to reduce the monthly bill for consumed electricity in the amount of 800 denars (13 EUR) per month, counted from the day of submitting the request.

### **7.3.4. Integration in municipal action plans and other local projects**

This is the first external project-based activities for the City of Skopje on the subject of Energy Poverty. However, there is a national program for Energy Poverty and the City of Skopje calls up on this program when subsidies for pellets, inverters<sup>50</sup>, bikes and chimney cleaning are being offered to the citizen.

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<sup>50</sup> Anti-pollution measure where households would purchase AC inverters used for heating/cooling, receive subsidy from the City in a maximum amount of 1000 EUR, but they would be obliged to give to the city (and the city is obliged to demolish in next phase) their stove that they used for heating, that would pollute the air. Last year 5000 inverters were subsidized and 5000 old stoves were delivered to the City's PE for waste treatment.

## 7.4. Target population

### 7.4.1. Target population data collection and classification under the socio-ecological model

#### TARGET POPULATION OF YOUR WUP

The main target for the implementation of this project in Skopje will be different categories of vulnerable and marginalized groups of citizens located in certain parts of the city.

Energy Poverty is a new subject for many circles in North Macedonia. Energy Poverty remained phenomenon for different vulnerable groups. Everyone is affected by Energy Poverty especially single parents, person with disabilities, senior citizen, temporary workers, self-employed workers, people with low-wage jobs, first-line workers (transport, supermarkets, retail and police), homeless people, drug addicts, people in poor health and other vulnerable groups.

Energy Poverty mostly affects low-income households; they can't maintain the comfort conditions in their homes because they can't afford the basic energy needs. The consequences of Energy Poverty mainly affect their health and well-being. The City of Skopje raises the issue of Energy Poverty and considers it from several aspects: social injustice, economic discrimination and the need for social care for vulnerable categories of citizens.

Hence, we believe that Energy Poverty requires a multidisciplinary approach in solving this problem.

Skopje as part of the international project Wellbased will follow the experiences of Valencia as a model, and will engage local stakeholders to design pilot interventions, including multi-sector stakeholders. The Focus Group of Vulnerable Households will also be involved in designing interventions for the activities to be implemented in accordance with their real needs.

#### Population: socio demographic characteristics

Skopje is a city located in North Macedonia. It is the capital, and also the largest city in the country. The city has a population of 506,926 residents.

The last officially census was carried out in 2002. More recent estimates show that the city has seen a drop in population, with unofficial estimates putting the population around 502,700.

Skopje is home to about one-third of the country's total population. The largest ethnic group are Macedonians, who comprise over 66% of the total population. There is also over 20% Albanians, as well as other groups including Romani, Serbs, Turks, Bosniaks, Aromanians and a small percentage of other ethnic groups.

There are many religions observed through Skopje, with the primary religions being Orthodox and Islam. 16% of residents graduated from university, which is higher than the nation average of 10%. 80% of people in Macedonia who have a PhD live in Skopje. Skopjans with no or low education is just 9%, which falls well below the province's average of 17%.

The population has grown steadily throughout the years, exceeding 100,000 residents in the 1950s, passing 300,000 in the 1970s, and reaching over 500,000 by 2002. However, recent estimates suggest that the population has declined from the last official count held in 2002. There is nothing indicating that this will be a continuing trend. In fact, as more people continue to move from smaller towns and villages to pursue the opportunities available in Skopje, the population should continue to increase in the future.

### **Age structure**

0–14 years: 19.5% (male 210,078; female 203,106)

15–64 years: 67.8% (male 707,298; female 696,830)

65 years and over: 12.7% (male 97,437; female 124,661) (2004 est)

According to the State Statistical Office data, in the Republic of North Macedonia, the number of live births in urban areas in 2020 was 11 258, which represents 59.2% of the total number of live births, in comparison with 7 773 live births or 40.8% in rural areas. By regions, Skopje had the highest share of total live births, 38.8%, while the East Region had the smallest share, 6.1%.

The average age of mothers for all live births was 29.8 years in urban areas and 28.4 years in rural areas. The average age of mothers at first birth was 28.1 years in urban areas and 25.9 years in rural areas. Mothers from rural areas were 2.2 years younger at first birth than mothers from urban areas.

The number of deaths in urban areas was 15 948, which represents 61.9% of the total numbers of deaths, in comparison with 9 807 or 38.1% in rural areas. By regions, Skopje had the largest share of the total number of deaths, 28.5%, while the Vardar Region had the smallest share, 8.1%. There were 64 infant deaths in urban areas and 44 in rural areas.

The life expectancy was 73.1 years in urban areas and 73.6 years in rural areas.

The natural increase was negative, -4 690 persons in urban areas and -2 034 persons in rural areas. Only the Skopje Region had a positive natural increase, while the other regions recorded a negative natural increase.

The data on internal migration at the regional level show that the dominant form of migration was from rural to urban areas with 37.6%, whereas inter-urban migration accounted for 8.7%.



Rural-urban migration at the regional level was highest in the East Region with 50.9%, while inter-rural migration in the Polog Region made up 54.2% of the total migration in the region.

The external net migration was highest in the Skopje Region, 758, while lowest in the Southeast Region, - 129.

### **AREAS ESPECIALLY VULNERABLE WITHIN THE AREA OF INTERVENTION**

There are few neighbourhoods in the city that are in much worse situation: Topansko Pole - Roma settlement in the centre of the City, Shuto Orizari – Municipality in the City of Skopje with mainly Roma people. Housing conditions are very poor, central heating system is not installed, so mainly the heating in winter is left to the owners of the houses and/or barracks.

#### **Layer 1: Individual lifestyle factors**

##### **HEALTH**

Regarding health, the surveys indicate that the health status of Roma people it is drastically worse compared to the general population, as a result of **unfavourable socio-economic life conditions, unemployment, low educational level and lack of information**. According to basic health indicators, life expectancy of Roma people is 10 years shorter than the national average. Infant mortality among Roma is 13,1/1000 (general population 10,3/1000), and differences exist also in the age at which chronic non-communicable diseases first emerge, in immunization coverage, regular health exams, especially among women during the reproductive period, as well as in health information access.

From a financial aspect, health care access and compliance are often prevented by the lack of financial resources typical for this population. Inadequate living conditions and low family wages significantly worsen the health status of Roma population.

Among the more important systemic factors influencing this status are: unregulated civil status and lack of appropriate personal and other documentation; lack of stable employment, failure to report to the unemployment office, or reporting late which results in loss of right to health insurance, etc, which is only a part of the conditions necessary for access to the health care package guaranteed by health insurance. The lack of health care access among Roma is a key problem that requires a solution.

Healthy activities are very important for the people in Skopje. The citizens can exercise and recreate every working day outdoors for free at different public areas and parks of the city.

#### **Layer 2: Social and community networks**

Official data about intergenerational mutual support could not be found, since the activities of this project will not focus only on one district, but rather cover more areas of the city. In general, the findings are that the population at risk of social distancing, even more so for the last almost 2 years with the covid crisis. Still the main concerns we are aware of are:

- Population not able to mix and socialize with other groups (higher or different lifestyle status)
- Loneliness
- Main concern and focus of population: money and finding a job (even more so with the COVID situation).

### **Layer 3: Living and working conditions**

#### **WORKING CONDITIONS**

According to the data of the State Statistical Office, in the III quarter of 2021, the labour force in the Republic of North Macedonia numbered 945 158 persons, of which 796 681 were employed, while 148 477 were unemployed persons. The activity rate in this period was 56.2, the employment rate was 47.4, while the unemployment rate was 15.7.

#### **EDUCATION**

Even though primary and secondary education is obligatory and free 1.7% of children are not included in primary education, while 8.4 % are not included in secondary education. Access to education is especially challenging for Roma children, who 18.7 % do not attend primary education and 52.8% secondary education.

#### **HOUSING CONDITIONS.**

In Macedonia, about 80,000 households still lack long-term housing solutions, and 12% of the housing stock is substandard.

The average age of buildings in Macedonia is 30 years, and because of poor maintenance, about 100,000 units in collective apartment buildings need immediate EE intervention.

Housing conditions are particularly grave for Roma households. The capital city, Skopje, hosts squatter settlements of about 120,000. It has the largest Roma community in Europe, which lives in a ghetto-like environment. About 320,000 almost 15% of Macedonia's population live in illegally constructed buildings.

### **Layer 4: General socio-economic, cultural and environmental conditions**

#### **CLIMATE CONDITIONS IN THE CITY OF SKOPJE**

Skopje has a borderline humid subtropical climate (*Cfa* in the Köppen climate classification) and cold semi-arid climate (*BSk*). with a mean annual temperature of 13.5 °C (56 °F). Precipitation is relatively low due to the pronounced rain shadow of the Prokletije mountains to the northwest, being significantly less than what is received on the Adriatic Sea coast at the same latitude. The summers are long, hot and relatively dry with low humidity. Skopje's average July high is 31 °C (88 °F). On average Skopje sees 88 days above 30 °C (86 °F) each year, and 10.2 days above 35.0 °C (95 °F) every year. Winters are short, relatively cold and wet. Snowfalls are common in the winter period, but heavy snow accumulation is rare and the snowcover lasts only for a few hours or a few days if heavy. In summer, temperatures are usually above 31 °C (88 °F) and sometimes above 40 °C (104 °F). In spring and autumn, the temperatures range from 15 to 24 °C (59 to 75 °F). In winter, the day temperatures are roughly in the range from 5–10 °C (41–50 °F), but at nights they often fall below 0 °C (32 °F) and sometimes below –10 °C (14 °F). Typically, temperatures throughout one year range from –13 °C to 39 °C. Occurrences of precipitation are evenly distributed throughout the year, being heaviest from October to December, and from April to June.

### **ENERGY PRICES**

In the second half of 2020, the average electricity prices for households using between 1.000 and 2.500 kilowatt-hours (kWh) was 8.37 euro cents. Consumers of between 2.500 and 5.000 kWh in North Macedonia paid 8.33 euro cents per kWh. With the global energy crisis starting from January 1st, 2022 the prices increase by 9, 48 percent.

### **SOCIO ECONOMIC DEVELOPMENT**

Macedonia has come a long way in its transition from a socialist centrally planned system to a market economy since its independence in 1991. However, the country's integration into the European Union and other international structures has been slow and challenging.

## 7.4.2. Target population data analysis and conclusions

### a. Needs and Assets of the target population

Table 22. Needs and Assets of the WUP target population (Skopje)

<b>Layer 1: Individual lifestyle factors</b>
<ul style="list-style-type: none"><li>• Single parents to two or more under aged children</li><li>• Roma population – mostly isolated</li></ul>
<b>Layer 2: Social and community networks</b>
<ul style="list-style-type: none"><li>• Population at risk of social distancing</li><li>• Population not able to mix and socialize with other groups (higher or different lifestyle status)</li><li>• Loneliness</li><li>• Main concern and focus of population: money and finding a job</li></ul>
<b>Layer 3: living and working conditions</b>
<ul style="list-style-type: none"><li>• High unemployment rate, mostly in women. Generally poor living conditions.</li><li>• Lower educational background/level</li><li>• Some of the targeted population do not have legal documentation and/or are not eligible for subsidies that are given by the city or the government (bikes, inverters for heating/cooling)</li><li>• Other have difficulties getting familiarized with the open calls and filing up the documentation needed.</li></ul>
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>
<ul style="list-style-type: none"><li>• The City of Skopje is famous for very cold winters (up to -15 degrees) and very hot summers (up to +40 degrees)</li><li>• Energy prices increased since the start of 2022.</li><li>• After the increased prices in 2022, the government introduced subsidies to help with the bills to lower income families.</li></ul>

- Healthy activities are very important for the people in Skopje. The citizens can exercise and recreate every working day outdoors for free at different public areas and parks of the city.

**b. Causes for Energy Poverty in the pilot area and effects on health. Why our target population ends up with Energy Poverty?**

Energy Poverty with the increase in the prices of electricity as a problem has become a challenge for the already socially vulnerable group. Socially vulnerable groups, single parents who have a minimum wage or are unemployed are unable to heat their homes due to high electricity bills, have old houses with old windows and doors. To find a way to provide enough information and education to tackle Energy Poverty, this project will analyse the situation with Energy Poverty in Skopje in order to prepare better solutions.

The pathway or process that explains how people end up with Energy Poverty in all pilots can be summarised at the figure below. It also shows the effects of Energy Poverty in mental and physical health of people, some of them measured during the project for the research evaluation. The orange-coloured boxes are the areas where this specific WUP will intervene through its different actions, minimising needs and maximising assets of these fields. Please note that the outline of some boxes has also been coloured based on its corresponding layer in the social ecological model (see figure legend). In Macedonia case, as implementation will not take place, measurement indications (green-coloured boxes) do not apply.

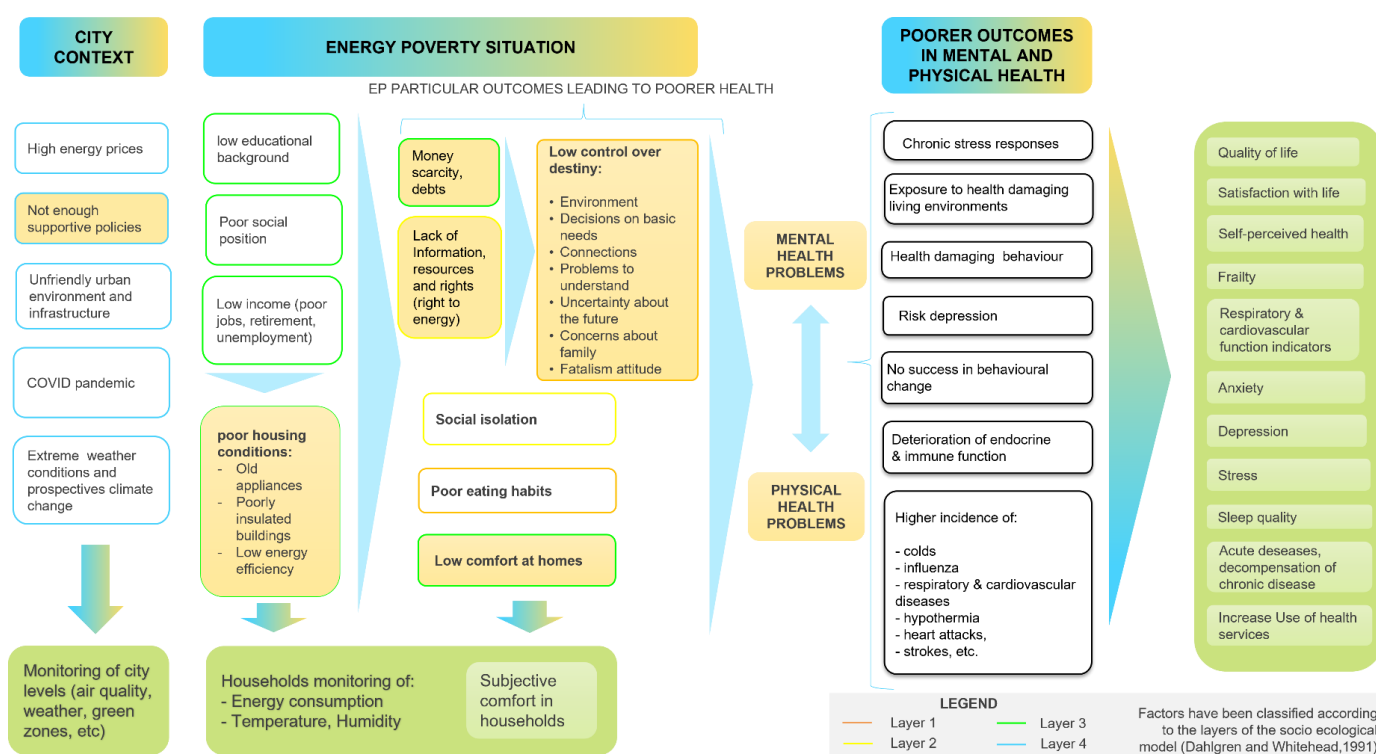


Figure 45. Skopje pilot's pathway of Energy poverty causes and effects in health.

## 7.5. Objectives of the WUP

### 7.5.1. Objective of the WUP

The Skopje WUP will focus on:

- **Campaigns to increase public awareness on energy efficiency.** Sustainable use of energy should be an important priority of communities and municipalities. There is an ever increasing need to adapt the ways in which energy is used in households in order to reduce energy consumption and limit the pollution associated with the energy use. The City of Skopje will map the key actors that can give visibility to the problem.
- **Education for proper use of energy and housing.** The price of energy is rising every day, and everyone is feeling the consequences. That is why we believe that households, local self-government, stakeholders and the government should help themselves through education. Energy inefficient housing, inadequate energy services and poor living conditions have been identified as the main challenges facing the citizens of the City of Skopje. In addition, citizens do not have

information on how to use energy efficiently, which leads to increased consumption and higher electricity bills. Education is needed to help prevent energy inefficiency in the city of Skopje (specified educational programs on the consequences on human health) led by psychologists, social workers, innovators and associations for supporting of marginalized groups.

- **Development of local intervention measures for prevention of energy efficiency by mapping and mobilization of the potential stakeholders** who will be involved in realization of specific local actions. The City of Skopje is also considering additional ways to combat Energy Poverty, which should include the replacement of inefficient appliances and heating systems, various levels of modernization of buildings and subsidies suitable for vulnerable households.

Practical encouraging energy efficiency measures for example would be: subsidies for marginalized groups and families with the status of vulnerable electricity buyers (replacing the old generations of household appliances with new ones that have high energy efficiency, renovation of facades of homes, replacement of old windows and doors).

- **Conducting a survey and energy audits covering 100 households in the city of Skopje** from different vulnerable categories of citizens. The survey is conducted with the aim of collecting information that will form policy proposals for combating Energy Poverty for the City of Skopje and establish a correlation between impaired health status and Energy Poverty. Energy audits and a survey will give us important information about household members, e.g., how much their energy bills are, whether they have insulation or adequate appliances, but also details about their health and comfort of living.
- **Realizing a case study (with help of other partners, cities and/or institutions) to install devices for measuring energy efficiency in homes** that meet the criteria for energy efficiency, and homes that do not. The comparison will help to develop a model that will allow the City of Skopje to assess the energy needs of a household based on the results of energy audits. Identifying and defining the problem and agreeing on indicators to monitor it are measures that have been proposed as a key step in the fight against Energy Poverty.
- The next step is to **integrate Energy Poverty into the local energy efficiency and social protection program**, which should be designed to be fully accessible to those in need.

## 7.5. 2. Tomorrow's newspaper

To help envisioning the impact of the WUP, here below is an imaginary news in a fictitious newspaper talking about our project results in five years from now.

## **A group of Single parents from Skopje create a community energy group to use efficiently energy vulnerability in their community.**

January 2027



*Following the EU project Wellbased (2021-2024), focussed on education on proper use of energy problem and risks to health, and its potential solutions, Jacinta and other six members of her neighbourhood, thanks to the community support received during the project. Using the knowledge and resources recently acquired in the EU training program about energy efficiency measures, bill optimisation*

*and public resources, they will create their own citizen-led association to meet regularly and exchange information about how to use energy efficiently. And have lower bills.*

*“Since we met in the Wellbased focus group of the Right to Energy, we felt this is an important matter that directly affects our health. We decided to come together to fight against this problem in their community and keep improving people’s conditions at home”, says Jacinta, who also declares that her health improved as result of Wellbased interventions, “My home is better insulated now, with new windows, doors and renovation of facades of my house, I can sleep well all night and I am not cold, and I have a lower bills.*



## 7.6. Overview of Actions

The following actions will be performed during the pilot project (detailed in 7.8.):

LIST OF WUP MAIN ACTIONS
<b>Layer 1: Individual lifestyle factors</b>
<ol style="list-style-type: none"> <li>1. Survey and energy audits</li> <li>2. Education for proper use of energy and housing</li> </ol>
<b>Layer 2: Social and community networks</b>
<b>Layer 3: Living and working conditions</b>
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>
<ol style="list-style-type: none"> <li>3. Campaign to increase public awareness on energy efficiency</li> </ol>

## 7.7. Impact indicators

### 7.7.1. General impact indicators

The table below shows information about how the pilot will collect the general impact indicators established for the project.

Variable	Instrument/indicator	Data Source	Data collection
Sociodemographic details: age, sex, gender, occupation, etc.	Ad-hoc questionnaire	Online* questionnaire for data collection	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: .....

Health and wellbeing measures			
Quality of Life	Quality of Life (HRQoL)	Online version of the clinical standardised questionnaires	<input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants
Satisfaction with life	Satisfaction with Life Scale (SWL)		
Mental health: Depression	Depression and Anxiety Stress Scales (DASS/BSI)		
Mental health: Anxiety			
Mental health: Stress			
Self-perceived health	SF-12 Health Survey (SF12)		
Frailty	Self Perceived Multidimensional Impairment Index (SELFY-MPI)	Online version of the clinical standardised questionnaire	<input type="checkbox"/> Other: .....
Subjective comfort in households	Self-reported scale <sup>51</sup>		
Respiratory & cardiovascular function indicators	Peak flow measurement	IoT Home health control devices, real time monitoring	<input type="checkbox"/> Manual collection  k) <input type="checkbox"/> Directly by participants l) <input type="checkbox"/> By another stakeholder  <input type="checkbox"/> Collection through wearables devices  <input type="checkbox"/> Other:... <b>definition in progress</b>
	SpO2 measurement		
	Blood pressure measurement		
	Sleep quality measurement		
Incidence of the acute diseases	Number of Diagnosed acute diseases	Electronic Health Records direct extraction and/or online questionnaire	<input type="checkbox"/> Direct extraction  <input checked="" type="checkbox"/> Questionnaire completed directly by participants  <input type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: .....
Decompensation of chronic disease	Number of diagnosed exacerbations, all health settings (Emergencies, acute units, hospitalisation, primary care)		
Readmissions	Admissions in the ED (emergency department), acute units or regular hospitalisation		
Use of primary attention services	Visits to the primary attention services distinct from those aimed at renewing the prescriptions		
Life experienced	Impressions, comments, experience and subjective perceptions captured in focus groups and interviews & codified	Qualitative analysis codified records	Partner responsible (UNIVLEEDS) will provide the methodology and keep the data collected

<sup>51</sup> Frontczak, M., Andersen, R. V., & Wargocki, P. (2012).

Energy efficiency evaluation			
Energy consumption	Yearly Kw/day	Energy providers (DSOs) App	Under definition
Household income spent on energy	% of income/Euros	Online questionnaires	<input checked="" type="checkbox"/> Questionnaire completed directly by participants <input type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants <input type="checkbox"/> Other: .....
Household conditions: temperature	Celsius Degree	IoT DT home sensors, real time monitoring	Definition in progress. To be detailed in D3.1
Household conditions: humidity	% Relative humidity		
Household conditions: air quality	CO2 and CO concentration		
City pollution	CO1, CH4, N2O, PM	SmartCity Open platforms (city-level/local data) Secondary sources (city reports, etc.)	Internet sources about the City of Skopje
City air quality	CO1, CH4, N2O, PM, soot & smoke (wildfires, urban fire), specific gases, dust, etc.		
City weather	Rain rays per year, Floods reported per year, Extreme heat days (>30°C) per year, Days below >5°C per year, Average temperatures, per season		
City climate	Comparison between these measures and the 10-previous-year reports and the 25-previous-year reports		
City green spaces	Green spaces (m2) per km2 Existence, localisation and length of <i>urban heat islands</i> Trees and parks or any other green space (m2) in <i>urban heat islands</i> (km2), if any		

### 7.7.2. Pilot Specific indicators

No specific pilot Impact indicators are planned.

## 7.8. WUP Detailed planification

ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 1.</b> Survey and energy audits	
Description	
<p>Conducting a survey and energy audits covering 100 households in the city of Skopje from different vulnerable categories of citizens. The survey is conducted with the aim of collecting information that will form policy proposals for combating Energy Poverty for the City of Skopje and establish a correlation between impaired health status and Energy Poverty.</p> <p><b>Where?</b> Energy Efficiency Office of the City of Skopje and/or at participant's home.</p> <p><b>How?</b> By fixing a face-to-face appointment with the participant, during which a comprehensive questionnaire will be filled. This questionnaire will include the collection of variables required for the evaluation framework of the project.</p>	
Outcomes of the action	
Energy audits and a survey will give us important information about household members, e.g. how much their energy bills are, whether they have insulation or adequate appliances, but also details about their health and comfort of living and the issues they face on the subject matter.	
Stakeholders involved	Period it covers (develop it on the next chart)
Energy Efficiency Office of the City of Skopje	Aug 2022- Jul 2023 (depending on the pandemic status)
Budget and resources (from Wellbased project or from other sources)	
Wellbased project and resources from the City of Skopje	

ACTIONS OF YOUR WUP	
Title (and number) of the action	
ACTION 2. Education for proper use of energy and housing	
Description	
<p>With the prices of energy is rising every single household or entity will be grateful if granted a proper education on energy usage. Energy inefficient housing, inadequate energy services and poor living conditions have been identified as the main challenges facing the citizens of the City of Skopje. In addition, citizens do not have information on how to use energy efficiently, which leads to increased consumption and higher electricity bills. Education is needed to help prevent energy inefficiency in the city of Skopje (specified educational programs on the consequences on human health) led by psychologists, social workers, innovators and associations for supporting of marginalized groups.</p> <p>Development of local intervention measures for prevention of energy efficiency by mapping and mobilization of the potential stakeholders who will be involved in realization of specific local actions. The City of Skopje is also considering additional ways to combat Energy Poverty, which should include the replacement of inefficient appliances and heating systems, various levels of modernization of buildings and subsidies suitable for vulnerable households.</p> <p><b>Where?</b> The Energy Efficiency Office in the City of Skopje, or for special cases, at participant's home.</p> <p><b>How?</b> Face-to-face appointment on site to detect problematic issues and answering comprehensive questionnaire in our offices.</p>	
Outcomes of the action	
<p>To have deep knowledge on participants' profiles regarding energy use and socio-health particularities.</p> <p>To provide with baseline information, helpful for deciding next steps and designing a customized intervention plan to cover participant's actual necessities.</p>	
Stakeholders involved	Period it covers (develop it on the next chart)
Energy Office City of Skopje	Aug 2022- Jul 2023
Budget and resources (from Wellbased project or from other sources)	
Wellbased project and resources from the City of Skopje	

ACTIONS OF YOUR WUP	
Title (and number) of the action	
ACTION 3. Campaign to increase public awareness on energy efficiency	
Description	
<p>Sustainable use of energy should be an important priority of communities and municipalities. There is an ever increasing need to adapt the ways in which energy is used in households in order to reduce energy consumption and limit the pollution associated with the energy use. The City of Skopje will map the key actors that can give visibility to the problem</p> <p><b>Where?</b> Social Media of the City of Skopje and perhaps other channels and/or project and City partners</p> <p><b>How?</b> Develop materials that will be promoted and will be promoted on the social media channels of the City. Infographics with useful information, posters, etc.</p>	
Outcomes of the action	
The Citizen of Skopje will be familiarized with the ways to reduce energy consumptions, lower their bills and also limit the pollution associated with the energy use.	
Stakeholders involved	Period it covers (develop it on the next chart)
Energy Office City of Skopje	Aug 2022- Jul 2023
Budget and resources (from Wellbased project or from other sources)	
Wellbased project and resources from the City of Skopje	

Table 23. Timeline of WUP (Skopje)

	June 22	July 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Nov. 2023	Apr. 2023	May. 2023	Jun. 2023	Jul. 2023	Aug. 2023	Sep. 2023	Oct. 2023	Nov. 2023	Dec. 2023	Jan. 2024
<b>Layer 1 – Individual Lifestyle factors</b>																		
ACTION 1. Survey and energy audits																		
ACTION 2. Education for proper use of energy and housing																		
<b>Layer 4 – General socio-economic, cultural and environmental conditions</b>																		
ACTION 3. Campaign to increase public awareness																		

# Chapter 8: Valencia (Spain)

## 8.1. Overview of the WUP



PILOTSITE  
**VALENCIA**  
(Spain)

### URBAN PROGRAM

#### PERIOD

Pilot activities: 12 months  
(AUG 2022/JAN 2023 to JUL 2023/DEC 2023)<sup>1</sup>  
+ follow-up audit 6 months after the  
end of the project activities

#### RESPONSIBLE AUTHORITY

Fundación Las Naves (LNV)

#### OTHER KEY STAKEHOLDERS

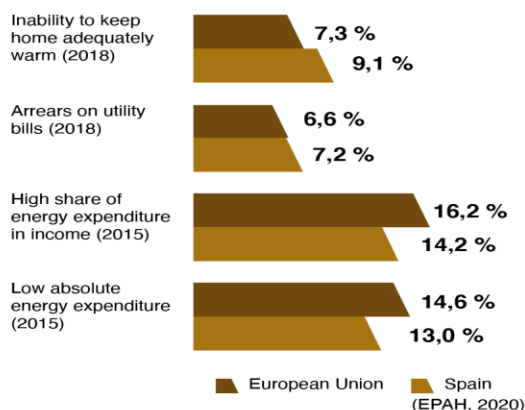
**Valencia Clima i Energia (VCE):** implementation of the pilot through its Energy Office  
**KVeloce (KVC):** support to LNV, monitoring and evaluation  
**INCLIVA (INC):** support and advice in health data collection and processing  
**The Urban Local Alliance (Aeoluz, Cáritas, Impact-e, Cátedra de Transición Energética Urbana, etc.):** trainings, workshops, providing contact network...

### THEMATIC SCOPE

#### SPAIN: ENERGY POVERTY COUNTRY DATA

- Incidence of Energy Poverty between 9,6% and 16,8% depending on the used indicator

##### Performance relative to EU average



#### VALENCIA: SOCIAL CONTEXT OF THE CITY

- Total population: 791,413 (2018)
- Aged population: 26,2% population over 64 years
- Immigration rate (not from EU): 10,6%
- Unemployment rate: 15,1%

##### Energy poverty and housing local conditions

- Comunitat Valenciana region has higher EP values than the rest of the country
- Valencia registered 23% households in EP in 2016
- In Valencia around 10% people doesn't have any installed heating system (relying on electric radiators, air conditioning... which have typically higher expenditures)
- 60% of the buildings in Valencia were built before the 80s (before efficiency regulations), more than country average (44%)
- In the districts of WB intervention, EP is above the city level (23,23%)
- Heating systems: mainly electric and natural gas, depending on the neighbourhood
- Water heating system: mainly electric heaters and natural gas boilers, depending on the neighbourhood

#### NATIONAL CURRENT POLICY TO TACKLE ENERGY POVERTY

- National Strategy of Energy Poverty 2019-2024
- Official definition points two causes: insufficient income and energy inefficient dwelling
- Social bonus for electricity and heating
- Energy efficiency measures
- Coronavirus especial measures
- Some recent measures to address prices hikes: reduction of electricity VAT, discounts to vulnerable consumers, moratorium of prohibition of energy supply disconnection

#### INTEGRATION IN MUNICIPAL ACTION PLANS AND OTHER LOCAL PROJECTS

- Valencia Sustainability and Energy Strategy: EU Covenant of Mayors (2009); SECAP; Energy Office and Right to Energy working group
- Local Strategy Valencia Healthy City
- Valencia Agri-Food Strategy
- Missions 2030 oriented Innovation Strategy
- Mission Climate-neutral and Smart city for 2030
- Social and Economic development Initiatives and Projects in the Pilot Area

<sup>1</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)



## TARGET POPULATION

<b>INTERVENTION AREA</b>	City districts Poblats Maritims (PM), Camins al Grau (CG) and Algiros (AL)	<b>TOTAL POPULATION</b>	158,131 (55,760, 65,981 and 36,390 inhab., respectively), representing altogether 19,8% of the population of the City of Valencia
<b>VULNERABLE POPULATION</b>	Low-income families, aged population, victims of domestic violence and/or drug abuse, households with disabled and/or chronically ill members, unemployed members, single mothers etc.		
<b>NUMBER OF WUP PARTICIPANTS</b>	177 (128 households) for intervention group (+ 177 for control group)		

MAIN EP SOCIAL DETERMINANTS OF HEALTH IN WUP TARGET POPULATION<sup>2</sup>

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## CITY INFRASTRUCTURE

- ☹ Inequal spatial distribution of green areas

## MUNICIPALITY COMMITMENT

- ☺ Previous EU interventions
- ☺ Energy Office
- ☺ Network of local stakeholders to fight against Energy Poverty
- ☺ Survey to map Energy Poverty in the

city (2016)

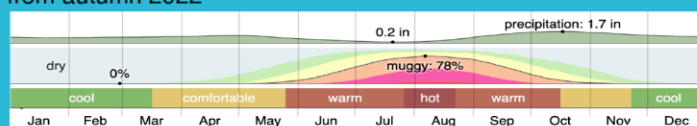
Energy Poverty is a priority on local government agenda  
Supportive municipal policy in health issues

## ENERGY PRICES

- ☹ High energy rise from autumn 2022

## WEATHER AND AIR CONDITIONS

- ☺ Mild winters (rarely below 0°C)
- ☹ Hard summers (up to 40°C), heatwaves and heat islands
- ☺ High humidity (districts near the sea)
- ☺ Air contamination above WHO levels


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## WORKING CONDITIONS

- ☹ Lower income level, depending on districts
- ☹ High unemployment rates (PM 36,5%; CG 29,6%; AL 25,6%). Higher for women

## HOUSING CONDITION

- ☹ Inefficient buildings, built between 1961 and 1980 and many small homes
- ☹ Heating system: principally electric but also natural gas in CG and AL. 25,4%

without any kind of heating system in AL

- ☹ Water heating system: electric heaters (PM and CG) and natural gas boilers (AL)
- ☺ Health and housing as important concerns for people
- ☺ Some energy saving measures already implemented in many households (low consumption light bulbs, etc.)
- ☹ Some others not enough implemented across the city (e.g. insulating windows)

- ☺ People declare to be satisfied with their houses

## EDUCATION

- ☹ Lower educational background

## HEALTH EQUIPMENT

- ☺ Good provision of health and social care services
- ☺ General satisfaction with health services

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## ASSOCIATIVE NETWORK

- ☺ Strong neighbourhood identity
- ☺ Sound associative network (higher than city average) and social capital

## KEY COMMUNITY ACTORS AND PLACES

- ☺ Municipal markets and Universitat Popular
- ☺ Active citizen and community initiatives to promote health (Consells de Salut, Mihsalud, Zona Santiago)

## UNWANTED LONELINESS AND SOCIAL ISOLATION

- ☹ Share of people above 65 years old living alone higher than city average

## UNHEALTHY / HEALTHY LIFESTYLES AND HABITS

- ☹ Unhealthy habits in PM
- ☹ Overweight and obesity in PM
- ☺ Good self-perception of health
- ☺ Relative high levels of happiness
- ☺ Healthy habits in CG and AL

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- Aged population, especially in AL
- Foreign population lower than the city average (10,4%)


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☺ assets  
☹ needs

<sup>2</sup> This is not an exhaustive list of all the social determinants of health but rather some important aspects highlighted by the local responsible and with relevance to the WUP.

## OBJECTIVE

- Reducing fuel poverty and its impacts on health and welfare in some vulnerable neighbourhoods, through actions across different levels: improving individual lifestyles, community networks of individuals, their home conditions and the institutional frameworks related with EP
- Assessing about how to improve their home conditions and health (including home visits, installation of efficiency kits and health parameters measurements), optimizing their bills and solving their debt problems
- Creating a Citizen School of Right to Energy, where participants will participate in gatherings and trainings about subjects of interest (energy efficiency, healthy habits...), including spaces of mutual support to relieve stress and share experiences
- Training key professionals in the neighbourhood about how



to identify and cope with EP cases (health centres, social workers, education centres...).

- Building institutional frameworks to fight EP at a municipal level

## ACTIONS & PILOT-SPECIFIC RESULT INDICATORS

ACTIONS & PILOT-SPECIFIC RESULT INDICATORS		PILOT-SPECIFIC RESULT INDICATORS
<b>LAYER 1 · Individual Lifestyle factors</b>		
<ul style="list-style-type: none"> <li>Socio-energy audits</li> <li>Bill optimization</li> <li>Debt support</li> </ul>		1 socio-energy audit per participant Debt solutions provided in at least 80% of cases
<b>LAYER 2 · Social and Community networks</b>		
Creation of a "Citizen School of Right to Energy": <ul style="list-style-type: none"> <li>Regular community meetings (sense of group, spaces of mutual support)</li> <li>Training professionals on the detection of EP</li> <li>Open talks about energy issues</li> <li>Artistic collective creation with schools and community vulnerable people</li> </ul>		Min. 1 regular community meeting per month Min. 6 trainings on EP detection to professionals Min. 6 open talks about energy issues Min. 20 people engaged in artistic creation
<b>LAYER 3 · Living and working conditions</b>		
<ul style="list-style-type: none"> <li>Home audits</li> <li>Energy efficiency kits</li> </ul>		1 efficiency kit delivered per participant
<b>LAYER 4 · General socio-economic, cultural and environmental conditions</b>		
<ul style="list-style-type: none"> <li>Citizen campaign for Right to Energy</li> <li>Policy advocacy plan</li> <li>Mapping of available and potential life-enhancing programmes and initiatives</li> </ul>		Positive response to the inclusion of EP in the statistical survey Min. 3 protocols/guidelines creation Min. 8 meetings to explore programmes and initiatives

## WUP INTERVENTION IN MAIN EP SOCIAL DETERMINANTS OF HEALTH<sup>3</sup>

LAYER 0	LAYER 1	LAYER 2	LAYER 3	LAYER 4
Due to the sociodemographic characteristics of the target population and/or the WUP focus, a special impact is expected on:	HEALTHY LIFESTYLES AND HABITS	ASSOCIATIVE NETWORK	UNEMPLOYMENT LEVEL	ENVIRONMENTAL AND WEATHER CONDITIONS
AGED POPULATION	ENERGY EFFICIENCY HABITS	KEY COMMUNITY ACTORS AND PROFESSIONALS	FINANCIAL SITUATION, INCLUDING DEBTS	CITY INFRASTRUCTURE (GREEN ZONES, BIKELANES...)
LARGE FAMILIES	MENTAL HEALTH AND ATTITUDE	UNWANTED LONELINESS/ SOCIAL ISOLATION	STRUCTURAL HOUSING CONDITIONS (INSULATION...)	SUPPORTIVE POLICIES AGAINST EP
SINGLE PARENTS			ENERGY EFFICIENCY MEASURES AT HOME	GENERAL PUBLIC AWARENESS
FAMILIES WITH NO CHILDREN			FORMAL EDUCATION LEVEL	ENERGY PRICES
ETHNIC MINORITIES			HEALTH CITY EQUIPMENT	

<sup>3</sup> The coloured areas represent the main categories of social determinants of health related to EP where the WUP will intervene. Only the ones with a direct link to the actions planned have been represented in order to outline the specificities of each pilot city.

## 8.2. Identification of the WUP

- **Title**

Wellbased Urban Programme in the City of Valencia

- **Period it covers**

Pilot activities: 12 months (from August 2022/Jan. 2023 to July 2023/Dec. 2023)<sup>52</sup>

+ follow-up audit 6 months after the end of the project activities

- **Responsible authority**

Las Naves (LNV)

- **Stakeholders and their responsibilities**

- Las Naves (LNV) is the main coordinator of Wellbased project and VLC pilot.
- Valencia Clima i Energia (VCE) will lead the implementation of the pilot mainly through its Energy Office, contributing with its experience, workforce, contact network and facilities. It will play a key role preparing and carrying out the WUP actions (audits, debt assessment, home visits, efficiency kits installations, trainings...), including participants' recruitment and project monitoring.
- The SME KVelocity (KVC) will be assessing the correct development of the pilot giving support to LN and taking part in the interventions' monitoring and evaluation.
- INCLIVA (INC) will participate in the pilot mainly by giving support and advice in health data collection and processing.
- The Local Alliance will contribute in the WUP implementation through their experience at local level (delivering trainings, workshops, providing contact network...).

## 8.3. Thematic scope of the WUP

### 8.3.1. Social context of the city

The City of Valencia currently has around 800,000 inhabitants and it is surrounded by a wide metropolitan area over 1,5 million inhabitants. Demographically and economically speaking, it is the third biggest city in

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<sup>52</sup> The WUP lasts 12 months for each participant but as the recruitment process spans 6 months (the last participant could be recruited up to January 2023), activities might be taking place for 18 months until December 2023. Additionally, a follow-up audit is planned for participants 6 months after the end of the activities (from January 2024 to June 2024)

Spain, after Madrid and Barcelona. It is in the Centre of the Mediterranean Corridor, being one of the most important ports in the Mediterranean region (5th port in freight transport).

Regarding socioeconomic aspects, the unemployment rate is 15,1% (last quarter of 2021) and the annual average net income is 13.380 euros per person, with 8,6% of the population living under 5000 €<sup>53</sup>. It has 20,8% of its population at risk of poverty based on income and a Gini Index of 34,3. Immigration rate (not from EU) is 10,6%, mostly from South America. Sociodemographic data show an aged population with 26.2% population over 64 years (2019) and around one fifth of them living alone.

### 8.3.2. Energy Poverty data

Based on the more recent available information (2020 Energy Poverty indicators. released by the Spanish government<sup>54</sup> based on the four primary indicators advised by the EPAH<sup>55</sup>), there is an incidence of Energy Poverty in Spain between 9,6% and 16,8% depending on the used indicator.

In particular, in the region of Valencia (Comunidad Valenciana), we find especially high values of Energy Poverty compared to the rest of the country (see Table 1). Namely:

- 20,5% of the population having a disproportionate expenditure of energy in relation with their income (2M Energy Poverty indicator)
- 13,7% of the population having an extremely low expenditure of energy in relation with their income (Hidden Energy Poverty or M/2 Energy Poverty indicator)
- 13,6% of the population having uncomfortable temperature at home in winter
- 11,8% of the population having utility bills' arrears

The COVID pandemic had a clear negative impact on Energy Poverty in 2020, presumably due to lockdown restrictions in March 2020 and subsequent economic vulnerability. In Comunidad Valenciana, all indicators showed an aggravation with respect to 2019 (see Table 1).

<sup>53</sup> Statistics Office of the City of Valencia, 01.01.2021 (<https://www.valencia.es/es/cas/estadistica/inicio>)

<sup>54</sup> Ministerio para la Transición Ecológica y el Reto Demográfico, [Actualización de indicadores de la Estrategia Nacional contra la Pobreza Energética](#), Diciembre 2021,

<sup>55</sup> Energy Poverty Advisory Hub (EPAH) [primary indicators](#):

- Arrears on utility bills: Share of (sub)population having arrears on utility bills.
- Low absolute energy expenditure (M/2): Share of households whose absolute energy expenditure is below half the national median.
- High share of energy expenditure in income (2M): The 2M indicator presents the proportion of households whose share of energy expenditure in income is more than twice the national median share.
- Inability to keep home adequately warm: share of population not able to keep their home adequately warm.

Table 24. Incidence of Energy Poverty in the region Comunidad Valenciana, according to the EPAH primary indicators from 2019 to 2020 (percentage of households)

	2019	2020
High share of energy expenditure in income (2M)	17,0	20,5
Low absolute energy expenditure (M/2)	12,1	13,7
Inability to keep home adequately warm	6,1	13,6
Arrears on utility bills	7,8	11,8

Among the population affected by Energy Poverty, the larger share corresponds to aged adults over 65 years-old living alone (28,48% of the total affected population, in the case of 2M indicator), followed by single-parent households (20,76%, in the case of 2M indicator).

More specifically in the City of Valencia, a first analysis of Energy Poverty was performed for the City Council through a mapping process back in 2016<sup>56</sup> (based on the estimation of 5 different indicators (10% rules, 2M, LIHC, MIS, Perception and Declaration based) and made a survey with 600 face-to-face households' interview. This research provided some first insights to drive the energy policy of the city, concluding that an average rate of 23% of total city households were in Energy Poverty using the MIS indicator. Values for the districts of intervention can be found below in the Target Population section (Living conditions).

### 8.3.3. Current policy to tackle Energy Poverty

The Ministry for the Ecological Transition of the Spanish government released in 2019 the National Strategy of Energy Poverty 2019-2024<sup>57</sup>, with Energy Poverty figures calculated from 2014 based on the four primary indicators advised by the European Poverty Advisory Hub (EPAH) and the commitment of an annual indicators' update. It also set reduction targets for 2025 (50% target and, at least, a 25% reduction) and proposed concrete measures to achieve the objectives, including its financing channels, prohibiting the cutting of supply as well in extreme weather situations. Additionally, an official definition of Energy Poverty was provided for the first time: "Energy Poverty is the situation of households which cannot fulfil their basic

<sup>56</sup> Instituto de Investigación de Ingeniería Energética (UPV), Proyecto de mapa de la pobreza energética per a l'Ajuntament de València, 2016 ([Mapa de la pobreza energética a València 2016 - TEU \(upv.es\)](https://www.upv.es/mapea/pobresae))

<sup>57</sup> Ministerio para la Transición Ecológica, Estrategia Nacional contra la Pobreza Energética 2019-2024, 2019. [https://www.miteco.gob.es/es/prensa/estrategianacionalcontralapobrezaenenergetica2019-2024\\_tcm30-496282.pdf](https://www.miteco.gob.es/es/prensa/estrategianacionalcontralapobrezaenenergetica2019-2024_tcm30-496282.pdf).



energy needs as a consequence of an insufficient income level and that can be aggravated in some cases due to an energy inefficient dwelling.”

On a national level, one major measure to address Energy Poverty is the social bonus for electricity (from 2009) and heating (from 2018). In addition, the Law 8/2013 on building renovation includes the fight against Energy Poverty as an objective and prioritises energy efficiency measures in serious situations of Energy Poverty. Also, the Emergency financial support measure provides emergency financial support to households and can be used for energy expenses in case of a disconnection risk.

It can be said that Energy Poverty is nowadays an important matter in the political and citizen debate, with many organisations active on the topic (more than 20 organisations are listed in the Relevant Organisations section of the EPOV website, including governmental organisations, NGOs and advocacy groups on national, regional and local levels).<sup>58</sup>

### **Main measures to address covid pandemic crisis**

During the initial phase of the pandemics, Spain introduced especial temporary measures to guarantee residential energy supplies almost at the same time as confinement started<sup>59</sup>. Namely:

- Prohibition of residential electricity and gas supply disconnections for non-payment
- Social tariffs automatically renewed until the end of the emergency state
- Temporary suspension of any upward update of the energy component of the default tariff for gas during the emergency state
- Enlargement of the pool of customers eligible for the electricity social tariff.

### **Main measures to address prices hikes**

Some measures have also been put in place by the government to mitigate the price hikes arising from autumn/winter 2021<sup>60</sup>. Namely:

- Reduction of electricity VAT, taxes and demand charges.
- Cap on the regulated price of natural gas (TUR) for winter 2021/2022
- Increased assistance programs' coverage, both for the electricity social tariff and the Thermal Social Allowance (the discount on the electricity bill granted by the social tariff to vulnerable consumers was increased from the current 25% to 60% and from 40% to 70%)

<sup>58</sup> EU Energy Poverty Observatory (EPOV), EPOV Member State Report - Spain, 2020 ([EPOV Member State Report - Spain \(eui.eu\)](https://eui.eu/eui-epov-member-state-reports))

<sup>59</sup> Mastropietro, P., Measures to tackle the Covid-19 outbreak impact on Energy Poverty. Preliminary analysis based on the Italian and Spanish experiences, 2020 ([Measures to tackle the Covid-19 outbreak impact on Energy Poverty \(eui.eu\)](https://eui.eu/eui-epov-member-state-reports))

<sup>60</sup> Barrella, R. (2021) 2021 Energy Price Crisis impacts on Energy Poverty in Spain, EP-pedia, ENGAGER COST Action ([https://www.eppedia.eu/sites/default/files/2021-12/Barrella\\_2021\\_Energy\\_Price\\_Crisis\\_in\\_Spain\\_Barrella\\_EP-pedia.pdf](https://www.eppedia.eu/sites/default/files/2021-12/Barrella_2021_Energy_Price_Crisis_in_Spain_Barrella_EP-pedia.pdf))

for the severely vulnerable - until 31 March 2022; And the budget for the TSA was doubled in 2021, reaching around €166 per household)

- Enhancement of the moratorium of four months to disconnect the electricity supply of vulnerable consumers, by adding six months with a "minimum vital supply" proxy

#### **8.3.4. Integration in municipal action plans and other local projects**

This WUP is aligned with the municipal strategy and integrated with other local initiatives in the area of intervention, described below.

##### **Valencia sustainability and energy strategy**

Valencia City Council took part in the first group of cities signing in 2009 the Covenant of Mayors and launched its first Sustainable Energy Action Plan (SEAP) in 2010 with the objective to reduce GHG emissions by 20% by 2020. This commitment was reinforced through the approval of the Sustainable Energy and Climate Action Plan (SECAP) by the city council on 2019, aiming at establishing the necessary strategies, actions and tools to achieve sustainable development of the use, consumption and energy production by 2030 to reduce its GHG emissions by 40% by 2030. Among these goals and the City energy strategy, one of the key axes is the fight against Energy Poverty and to make the right to energy for all its inhabitants a reality.

In order to address these challenges, the Valencia City Council, through the Valencia Climate and Energy foundation, has launched the first Energy Office of the city. The Energy Office aims to operate as a one-stop shop to assess, inform and give support to the citizens in terms of energy efficiency, renewable energy, Energy Poverty and energy transition, giving citizens the tools and information needed to participate in the Energy Transition as active players. Within WELLBASED, the Energy Office will act as a key tool for the implementation and validation of an urban programme to tackle Energy Poverty, improving health and wellbeing of vulnerable households, as well as raise awareness for the structural problem of Energy Poverty and the right to energy.

Other publications to face energy vulnerability include the open working group "Red Connecta Energía" organised and promoted by Las Naves, with monthly meetings for collaboration between different agents and entities fighting for the Right of Energy (academia, social services, private sector, public administration...). Las Naves has also promoted the university institution Cátedra de Transición Energética Urbana (in the Politechnical University of Valencia) which has an Energy Poverty workline to carry out support studies and actions oriented to energy vulnerable households.

### **Local strategy Valencia Healthy City**

València Healthy City Strategy of Valencia City Council is the result of a participatory and intersectoral process with agents from the 4 helixes that establishes 3 strategic lines and 20 objectives to promote the health and well-being of Valencian citizens, within the framework of living environments that promote healthy lifestyles. The backbone of this initiative is a new form of governance, where health is a cross-cutting criterion in all municipal public policies. Its basic principles are to achieve a healthier, safer and fuller life, universal, inclusive and equitable health coverage, and the empowerment of citizens to have greater autonomy and control over their own health. It address all health issues, social, economic and environmental, from an integrated and holistic perspective, promoting equity and inclusion. Generate healthy and safe environments that promote healthy lifestyles from a positive, activity-based approach to health, maximising community assets and addressing determinants of health.

### **València agri-food strategy**

In 2017, the FAO designated Valencia as World Food Capital for the celebration of the third Global Meeting of Signatory Cities of the Milan Urban Food Policy Pact. In line with the commitments adopted by Valencia City Council in the Milà Urban Food Policy Pact to improve food governance in the city of Valencia, the Municipal Food Council (CALM) was created. The CALM is a consultative and sectoral participatory body that promoted València 2025 Agri-Food Strategy. The Strategy is therefore a process focused on building a sustainable agri-food system, in which the relationships between the community-territory ecosystem (urban, peri-urban and rural) are established on the basis of relationships of balance, social and environmental justice. Promotion of healthy and sustainable diets is one of the main priorities of this strategy. Thus, health is also at the core of agri-food policies.

### **Social and urban innovation focused on missions and the climate mission**

Las Naves, as the centre for social and urban innovation of the València City Council, deploys the initiative Missions València 2030. A new and pioneering model of innovation governance aimed at city missions that improve the lives of citizens. Innovation missions that aspire to achieve a healthier, more sustainable, shared and entrepreneurial city, following in the footsteps of the EU's research and innovation proposals for the Europe 2021-27 horizon. The city focuses its research and innovation on "city missions" that improve people's lives and that citizens perceive and understand. Promoting the definition of València's Innovation Missions, which must be approved from a political perspective but also through participatory processes that involve citizens. Under the area of Missions for a Healthy City, achievement of health equity among neighbourhoods at all stages of life is one of the key strategic areas. Hence, WUP is aligned with this strategic framework. .



To sum up, our WUP is completely in line with the most recent municipal action plans in the city and reinforces the local projects already in progress in the zone to reach a global improvement of vulnerable population towards a just energy transition.

## 8.4. Target population

### 8.4.1. Target population data collection and classification under the socio-ecological model


TARGET POPULATION OF YOUR WUP	
	<p>Our target population spread across three districts of the City of Valencia: Poblat Marítims (PM), Camins al Grau (CG) and Algirós (AL) - districts 11, 12 and 13, respectively (see left Figure). These areas present socioeconomic and sociodemographic figures in the city average or below it, with some specific zones especially vulnerable. Here below are described its main characteristics classified under the social ecological model. Full data collection can be found in Annex 3.</p>
<p><b>Population: socio demographic characteristics</b></p>	
<p>Based on the data of the Statistics Office of Valencia per district<sup>61</sup>, Poblat Marítims (PM), Camins al Grau (CG) and Algirós (AL) have a <b>total population</b> of 158.131 inhabitants (55.760, 65.981 and 36.390, respectively), representing altogether 19,8% of the population of the City of Valencia.</p> <p>CG and AL have a very high <b>population density</b> with respect to the city average (almost five times the city average in the case of CG).</p> <p>Regarding <b>age</b>, AL presents a particularly aged population (especially between 65 and 84) and low workforce. Although the city in general presents low workforce indexes, at present and in the next future, AL has significantly below average indexes (172 people between 60-64 years-old, per 100 between 15-19). while CG has better future prospective in terms of workforce (in this case, “only” 110 older people for 100 younger people). Equally, the <b>population’s evolution</b> of CG is the only one that shows a stable/increasing trend while the other two</p>	

Figure 46. Districts of WB intervention (11, 12 and 13) in the city of Valencia

<sup>61</sup> Statistics Office of the City of Valencia, per district, 2021 ([Distritos - València \(valencia.es\)](https://distritos.valencia.es/))

neighbourhoods (PM and AL) have a decreasing population evolution since 2011 (in contrast with the increasing trend of total Valencia city).

There are between 1,25% and 1,65% **single parent households** in the intervention neighbourhoods, similar numbers to the city average (maximums in CG and minimums in AL).

Concerning **foreign population**, intervention neighbourhoods have in general similar or lower levels than the city average (between 9,2 and 11,6%), having South American, EU and Chinese population the largest shares. However, there are some exceptions: Asiatic population is overrepresented in AL and CG with respect to the rest; while African and European are overrepresented in PM (the share of EU-28 inhabitants, quite significant, is probably due to its proximity to the beach), which contributes to create a strongly mixed background in this district.

Regarding **socioeconomic figures**, PM and CG are in general under the city average, with PM standing out with especially low levels: e.g., average income (€10.991 per year, compared to €13.380 city average), population under €5.000 per year (12,5% compared to 8,6% city average) and a concerning number of people at risk of poverty (26,6% compared to 20,8% city average). AL's economic levels are, in contrast, slightly above the city average.

**To sum up, while AL seems to have a sociodemographic vulnerability due to an aged population, PM and CG present economic vulnerability with lower incomes than the city average and higher percentages of people at risk of poverty, especially PM.**

Detailed data of this section can be found in the table a1 of Annex 3.

#### **AREAS ESPECIALLY VULNERABLE IN THE AREA OF INTERVENTION**

Besides the general districts data described before, some specific neighbourhoods within the three districts present a much worse situation (corresponding to high migrant density areas, Roma people settlements, etc.). To mention some of them: el Cabanyal-el Canyameler (Poblats Maritims), Betero (Poblats Maritims), l'Illa Perduda (Algiros), l'Amistat (Algiros), Aiora (Camins al Grau), etc. Figure 47. shows in red colour the most vulnerable neighbourhoods within the intervention area, according to the Statistics Office of the City Council.

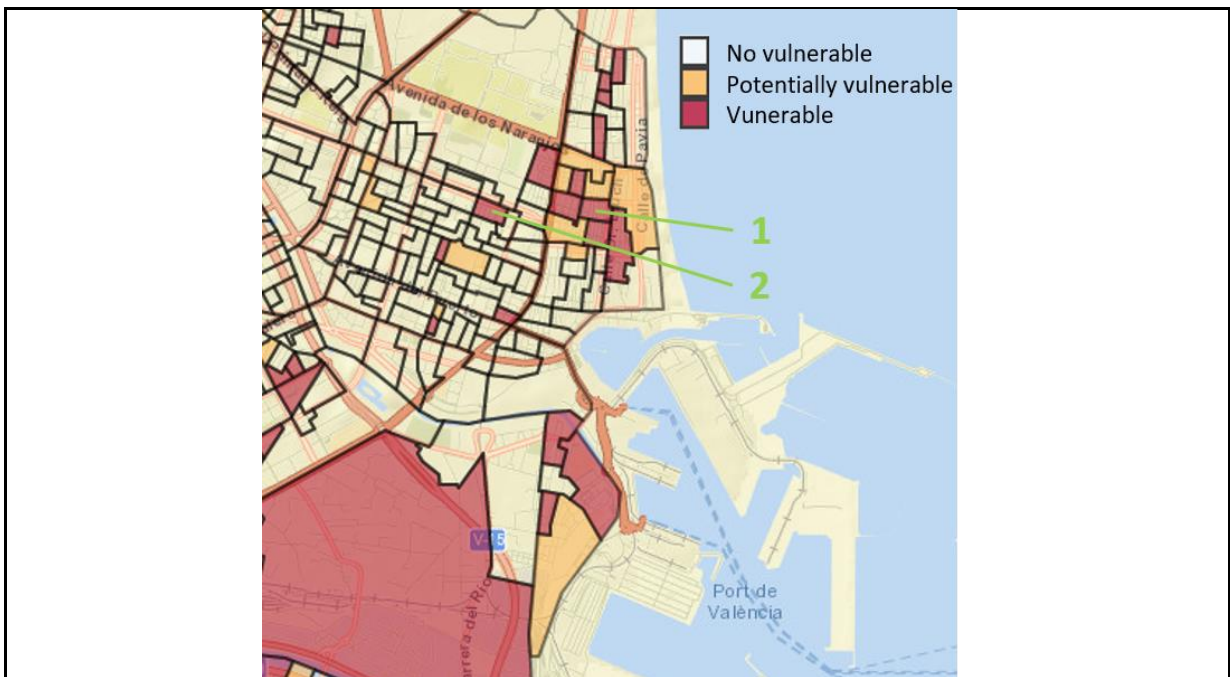


Figure 47. Vulnerable neighbourhoods in the districts of intervention

Data source: "Vulnerable Areas from the City of Valencia" Map, by the Statistics Office of the City Council of Valencia, 2019

To illustrate the degree of vulnerability of these specific areas, two of the most vulnerable, Cabanyal-el Canyamelar (Poblats Maritims) and l'Illa Perduda (Algiros), numbered 1 and 2 in Figure below, are described below in more detail (see Table a6 of the Annex 3 for full data description).

These two zones and their surroundings (zones of Cabanyal-el Canyamelar-Betero and Illa Perduda – Ciudad Jardí) are classified as vulnerable areas in the National Vulnerable Neighbourhoods catalogue<sup>62</sup>, presenting especially poor housing vulnerability indexes.

**Illa Perduda**, in its census tract 13.4, is ranked 572 out of the 590 neighbourhoods of the City of Valencia, regarding a general vulnerability index established by the Statistics Office of the City Council. (index =2,29).<sup>63</sup> It presents one of the lowest sociodemographic and socioeconomic figures of the city. It has a high number of non-European population (13,52%) and a prominent number of aged people (14,16% above 80) and aged adults living alone (9,57% above 64 living alone), one of the highest levels in the city. A concerning share of 31,1% of its population is considered at poverty risk and net average annual income is 9.425 euros, well below the city (and even its district) average.

**Cabanyal-el Canyamelar**, in its census tract 11.21, is ranked 538 out of the 590 neighbourhoods of the City of Valencia, regarding its general vulnerability index (index=2,43). Its socioeconomic figures are especially

concerning, including one of the worst indexes in housing vulnerability (ranked 589 out of 590). It has 26,4% of population at poverty risk and 9.845 euros of net annual income, well below the city average.

### Layer 1: Individual Lifestyle factors

#### HEALTH

As far as **health** is concerned, according to surveys realised by the Statistics Office of the City of Valencia, most of the Valencia citizens consider themselves healthy or very healthy (71,4% of the population), but almost one fourth of the city declares having medium health (and 5,1% bad or very bad). Population at PM has a better self-perception of health than the city average and the other two districts.

Focusing on some of the health problems typically related to Fuel Poverty, we find a high prevalence of bones, joints or muscular pains (around 40% of the population, and significantly more in CG). Respiratory problems account for around 6% of the population. Insomnia affects around 15% of the population on average (more in the district of PM).

Surveys in the three neighbourhoods indicate that self-perception of tiredness/vitality is in general within the city average (5,8 out of 10, being 1 very tired and 10 maximum vitality), with CG scoring even more (6,4). With respect to happiness feeling, as far as these estimations might reflect reality, levels are again within the city average (6,7 out of 10, being 1 very sad and 10 very happy), except for PM which shows a higher level 7,1, apparently in contrast with its low economic indexes. It also presents more extremes feelings (more people reflect in surveys being “very sad”, as well as “very happy”).

The following parameters are indicators of health inequalities: Life expectancy rate in 2020 is higher than city average (83,1) in AL (84,02), but among the lowest of city districts in PM (81,54) and is also lower in CG (83,02)<sup>64</sup>. Premature mortality rate<sup>65</sup> for 2019 is higher than city average (213,72) in PM (265,21) while in the other districts is below (208,99 in CG and 181,38 for AL). This rate increased much more during 2020 (COVID effect) in CG and AL than in PM.

CG and AL seem to have good **sports habits**, with a significant share of people considering it a very important healthy activity, in contrast to PM where it does not seem to be a priority. Equally, more people than the city average in CG and AL practise sport and physical activities in their free time, probably influenced by the number

<sup>62</sup> National Vulnerable Neighborhoods Catalogue, 2011, National Observatory of the Urban Vulnerability (Spanish Ministry of Transport, Mobility and Urban Agenda) ([bbvv.2011.10.comunitat.valenciana.pdf](https://bbvv.2011.10.comunitat.valenciana.pdf) ([mitma.gob.es](https://mitma.gob.es)))

<sup>63</sup> Map of the Vulnerable Areas from the City of Valencia, 2019, Statistics Office of the City Council of Valencia ([https://estadisticavlc.shinyapps.io/Areas\\_Vulnerables\\_2019/](https://estadisticavlc.shinyapps.io/Areas_Vulnerables_2019/))

<sup>64</sup> Source: Statistics Office of the City of Valencia

<sup>65</sup> Deaths under 70 years of age per 100,000 population under 70 years of age. Source: Oficina de Estadística del Ayuntamiento de Valencia.

of sport facilities and associations in their neighbourhoods. But 35,3% of people in PM does not do any physical activity or sport. As for physical activity PM is under city average on spending at least 10 minutes walking or cycling for mobility purposes (22% of population does not spend them at any day of the week). CG and AL are over the city average and with high rates <sup>66</sup>.

AL and PM have higher overweight and obesity index than city average, while CG is under it, in fact is one of the lowest districts<sup>67</sup>. Also, PM is over city average in percentage of the population that smokes (30%).

Detailed data and references of this section can be found in the Table a2 of the Annex 3.

## Layer 2: Social and Community networks

According to data from the local Statistics Office of València City Council, in 2019, the three districts of the target population hosted 18% of total number of **associations and NGOs** of the city (the city has 19 districts in total). PM, CG and AL are respectively in the 4, 5 and 7 city ranking positions on number of associations. Considering the number of associations for each 1000 inhabitants, AL (6,4) is over the city average (5,9), PM is on the average. CG holds a rate of 4,2. Thus, these are districts with high associative network.

Associations at PM are mainly cultural (99, also with relevance related to city total), parties and recreation (37), social care (31) and social participation (22), also with significant relative weight in the total of the city. There is an important tradition in PM of music bands, where many children and young people learn to play an instrument and take part of these bands. Equally, the presence of cultural associations for Easter religious tradition (Semana Santa Marinera or Marine Holy Week) is very important and typical of PM. In fact, it is recognised as an event of national cultural interest and there is a museum in PM devoted to this cultural heritage.

This distribution in AL is similar, with high presence of cultural associations (48), followed by social care associations (31) and professional and economic associations (17). CG has 61 cultural associations, 46 on social care (second district within the city) and 20 sport associations, the second district.

There are also several cultural associations related to the annual Valencian festival called “Fallas”. They are an important part of the culture around this party, but also important drivers of social cohesion within the districts throughout the city. This active cultural activity in the districts compensates the current insufficient endowment of public cultural equipment, which despite of being higher than in other districts of the city, it is more targeted to tourism (museums, etc.) than to foster cultural involvement of citizens.

<sup>66</sup> Source: Infobaròmetre Municipal d'opinió ciutadana. Setembre 2019. Statistics Office of the City of Valencia

<sup>67</sup> Source: Baròmetre Municipal d'opinió ciutadana. Setembre 2019. Statistics Office of the City of Valencia

In 2020, a participative process was carried out in the three district neighbourhoods to map **citizen initiatives** that represent the power of an active and critical citizenship that enables another way of making the city through self-management and participation. At least 33 initiatives were identified dealing with culture and recovering traditional customs and knowledges, community development, rights, historic memory and equity, feminisms, health, cares and sport. Some of these initiatives emerge around public spaces that are also community meeting spaces, such as Urban Vegetable Gardens (Huerta), cultural meeting spaces, urban plots, periodic meeting points for specific actions and routes.

Currently, some new **community promotion initiatives** have emerged after pandemics. Some of them, such as Cabanyal Horta<sup>68</sup>, Zona Santiago project (<https://zonasantiago.org/>) are located at the leisure space of the Santiago Apóstol Cabanyal school, open to the neighbourhood and neighbourhood organizations outside school hours, with the aim of promoting diversity and models of community management of public spaces. It is a meeting point for the community, and it holds activities that promote health, community networks and a wide diversity of community activities decided by the community, all of them from an intergenerational perspective. Other initiatives are devoted to health promotion and tackling social determinants of health and health inequities, such as the Health Councils (Consells de Salut), a public - community participation body that involves Primary Health Centre, social workers, neighbourhood associations, volunteers, NGOs, schools and other key stakeholders in each district for health promotion. These districts are the most active and pioneers within the city in the creation and working of Health Councils designing and carrying out activities targeted to different vulnerable population and especially related to healthy and active ageing. Three Health Councils have been identified in these districts to be involved in WELLBASED project.

Mihsalud project is aimed at promoting health in vulnerable populations. It consists of a network of health agents who work to improve the health of vulnerable populations, creating spaces for coexistence, with a gender and intercultural perspective and coordinating with neighbourhood associations and resources. The project has an interactive map of community resources for the districts in <https://mihsaludtech.org/>. One of these networks is in these districts.

In the area of intervention there are other municipal cohesive initiatives such as the local markets (4 in total the whole area) that activate neighbourhoods' lives and local trade - Algiròs in AL, Cabanyal and Nazaret in PM, El Grau in CG, currently under restoration. Promotion of local production and markets is one of the current local government priorities. Equally, the "Popular Universities", non-formal training centres for adults (5 in total) are

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<sup>68</sup> This ecological collective was born from the neighbourhood and is an example of community participation where social dynamisation takes place. This space is an open agricultural garden located on the site where the foundations of the houses of the El Clot settlement lie. The aim of this space is to recover social values and to be a meeting place where, in addition to agricultural learning, workshops of all kinds are held.

common places of social gathering. All these entities can be useful for the development of our pilot (helping in recruitment, facilities to give trainings, etc.)

PM has a long and impressive history of citizen movements associated with the **defence of the territory**, values and history of the neighbourhood in the face of certain speculative urban development actions that were intended to be carried out in past decades. These pacific movements managed to stop these actions, but the neighbourhood was affected by years of neglect and pressure on citizen to leave. Nowadays there are some areas in this district highly degraded with people in risk of exclusion side by side with fashionable areas leading to the risk of gentrification.

PM, as well as some areas of CG and of AL are neighbourhoods with a **strong identity, cultural traditions** and a very active and organised civil society. PM was declared an Asset of National Interest (Bien de Interés Cultural) due to its urban architecture in 1993.

Despite the facts mentioned above, AL is also one of the districts that presents higher number of people **above 65 years old living alone** (6,32% - 2.300 people- compared to the 5,67% city average), including very aged population (916 people over 80 years old living alone). Thus, AL is a district with quite a significant part of population in **risk of unwanted loneliness**, fact that explains the presence of several initiatives currently running to tackle this issue within the district.

The **degree of satisfaction with living in the own district** ranks among 8,3 (AL), 7,9 (CG) and 7,8 (PM) over 10, city average ranks 8. In fact, AL population thinks they are one of the best districts of the city. In PM, the proximity to beach and the neighbours are the most preferred factors of the district, also the diversity of services; for CG, these factors more ranked are the diversity of services, green zones, peace and proximity to beach; for AL, the diversity of services, peace and the neighbours. In PM and AL, more than 96% of residents feel a lot of enough united with those around them, CG ranks slightly behind (93%). In AL people feel more optimistic and able to face daily problems than in the other two districts. Health issues rank among the most important issues for people in these districts, together with employment, money, housing and urban environment. Also, neighbours and friendships, freedom, rights and duties. Neighbourhood ties are very present in people's life in PM and CG, and CG has a percentage of population actively involved in NGOs, associations higher than the city average. PM shows also index of happiness and satisfaction with current life, higher than city average and the other two districts; CG shows the lowest rates of the three districts. The same ranks for current support informal networks, higher rates in PM followed by AL, CG less.<sup>69</sup>

<sup>69</sup> Source: Baròmetre Municipal d'opinió ciutadana. Desembre 2019. Statistics Office of the City of Valencia



**València Port** is also located in PM, which has both positive and negative impacts on the area and whose growth generates pressure on the current social dynamics of these districts.

Detailed data of this section can be found in the Table a3 of Annex 3.

### Layer 3: Living and working conditions

#### WORKING CONDITIONS

Regarding **unemployment**, PM and CG are one of the four districts with higher levels in the city (and more women than men, as a permanent trend).

Regarding **main economic activities**, most of the population (around 70%) works in trade and services. Within this sector, “trade, hotel, restaurant and repairs” subsector is especially represented in the areas of intervention (42-45%) compared to the city average (38,4%), probably due to the tourism concentration in some areas close to the beach. This is reflected as well in the share of professionals devoted to trade, hotels and restaurants, over the city average in PM and CG. Equally, in PM, the subsector of transport and communication is over the city average likely because of the presence of the port in this district.

In the area of intervention, there is only a small representation of construction professionals (although AL stands well above the city average in this activity) and industry and almost no artists and primary sector. However, while PM has more industry than the rest, CG has no primary sector and less professionals in finances, law and insurances than the rest.

#### EDUCATION

Based on the data of the Statistic Office of Valencia, regarding **education**, the whole area of intervention presents a large share of people without the Secondary Education Graduate (19,8% compared to 17,6% city average; with more women undereducated than men) and a lower share of higher educational levels than the city average

#### ENERGY POVERTY

According to the research study done by the Instituto de Investigación de Ingeniería Energética (UPV) about **Energy Poverty**<sup>70</sup>, between 9,9% and 40,90% of the population (depending on the indicator used) were found in EP in the districts of intervention in 2016. As can be seen in the table below, AL and PM are practically above the city levels for almost every indicator, indicating high levels of EP in these districts. Especially concerning are the

<sup>70</sup> Instituto de Investigación de Ingeniería Energética (UPV), Projecte de mapa de la pobreza energètica per a l'Ajuntament de València, 2016 ([Mapa de la pobreza energética a València 2016 - TEU \(upv.es\)](#))



values of around 40% of the population declaring to have uncomfortable temperature conditions at home in these districts. On the contrary, CG has better figures than the city average.

Table 25. Incidence of Energy Poverty under different indicators in the districts of intervention (2016)

Energy Poverty Indicators	Algirós	Camins al Grau	Poblat Marítim	Valencia
R10%	17,84	10,42	14,99	11,91
2M	21,41	13,03	22,49	18,18
LIHC (Low Cost High Income)	12,49	5,21	9,99	10,16
MIS (Minimum Income Standard)	32,62	23,45	29,94	23,23
Temperature perceptions	37,62	24,44	40,90	32,69

## HOUSING CONDITIONS

While the majority of the **dwelling**s have been built between 1961 and 1980 in all zones, a difference can be observed in PM and CG, where older buildings from 1901 and beyond are more prevalent than in other areas.

Regarding **housing ownership status** in the areas of intervention, more people than city average has pending house payments and less complete ones. Mortgages' quantities are lower in PM and AL than in Valencia city. From another side, tenancy levels are on average with the city (28,1%).

Small homes (between 51 and 100m<sup>2</sup>) are more prevalent in the area of intervention than in Valencia city, especially in CG.

There seems to be a general **satisfaction of people with their homes**, according to surveys from the Statistics Office of Valencia, although PM (7,7/10) scores less than the city average (8,4/10).

Based on the surveys of the municipal barometer done by the Statistics Office of the City of Valencia, regarding **heating systems and appliances**, each neighborhood presents different characteristics. PM shows a very significant use of electric heating (82,9%), well above the city average (68,7%), while natural gas (11,1%) and bottled butane gas (6%) is less used and lower than city average (22,8 and 11%, for natural gas and butane gas in Valencia City, respectively). There is a 9% of population that does not have any kind of heating system, slightly above the city average. In the case of CG and AL, although most of the population uses electric heating (52,3%

and 74,9%, respectively), there is more prevalence of natural gas than the city average (around 35-40%). Bottled butane gas is almost not used in AL. In AL, there are 25,4% households registered without any kind of heating system.

Regarding **water heating systems**, there is a high prevalence of electric heaters in PM and CG, above city average (51,5% and 75,3%, respectively, compared to the city average of 38,2%), while natural gas boilers are much more used in AL (80,2%) than in the other two neighborhoods (39,2 and 23,2%, respectively). A small share of population uses bottled butane gas in PM and CG (8-9%) and almost none in CG (0,8%). A residual share of people (but still existant, nevertheless) does not have hot water at home.

To sum up, in PM most of the people rely on electricity for air heating (radiators, air conditioning) and electric/gas water heaters (so, in general, more electricity consumption than gas). In CG, more people has gas boilers for air heating than electric systems but electric water heaters are widely extended for water heating. Finally, in AL, most of the people use electricity for air heating and gas boilers for water heating. Butane bottled gas accounts for less than 10% of households (almost none in AL). There are no registration (or almost none) of other heating systems such as wood or coal stoves and no presence either of solar energy for electricity or water heating. Our action program will take into account these characteristics in the design of trainings and energy efficiency guidelines.

Concerning **energy efficiency measures**, some of them are already widely spread in the city such as low consumptions light bulbs (in around 86% of households) or sustainable consumption appliances (in around 70%). Within the area of intervention, we can find values around these averages or even higher, except for CG which shows lower values. However, regarding insulating windows, we can find them only in around half of the Valencia households (similar trend in PM and AL). But this time, CG is significantly above average. Solar energy is practically absent, except for some residual values in AL. All these trends can give us an idea of how well a proposed measure will be received and accepted (e.g. light bulbs, sustainable appliances), taking into account that the person might have it already implemented; and which other measures might need more effort of awareness, communication and support (e.g. solar energy, technology which is increasingly spreading in Spain but still faces some barriers in the city context and for vulnerable households).

As far as **bills arrears** are concerned, there is a high disparity between neighborhoods. While the Valencia average population with at least one bill unpaid or delayed in the last 12 months is 8,5%, PM shows only 1,8%; CG an alarming share of 12,8%; and AL 5,8%. As a general trend in the city, due energy bills are mostly from electricity and water, and also gas in a smaller share. In our area of intervention, this trend is followed except for gas bills' arrears that have a bigger representation in CG (none in PM or AL) and except for AL population that does not seem to have electricity bills' arrears (only water). Therefore, it seems that all three electricity, gas and water bills' arrears will have to be addressed in our debt assistance program.

Regarding **house conditions**, a concerning 17,3% of the population of Valencia has leaks or dampness in walls, roofs or foundations, and even more in PM, reaching 22,5%.

In the case of the especially vulnerable zones mentioned before, El Cabanyal and Illa Perduda, there are 17,79% and 18,01%, respectively, of familiar dwellings in bad or very bad conditions, exceeding the established housing vulnerability level (set on 17,5%)<sup>71</sup>.

## CITY FACILITIES

Regarding **healthcare provision**, the area of intervention is within the health department of Valencia-Clinic-Malva-rosa. The whole area is better equipped than the city average as for primary health attention (in terms of population per primary health Centre), with 2 public hospitals, 1 especialities centre, 7 primary health centres and 3 Primary Attention centres (more detail in Table of Layer 2 of Annex 3).

Although the Region of Valencia (Comunitat Valenciana) is one the worst ranked nationally in doctors' provision (5,4 doctors per 1.000 inhabitants while national average is 5,9)<sup>72</sup>, in the City of Valencia a vast majority is satisfied or very satisfied with the health public services used in the last 12 months (only 5.3% insatisfied), according to 2016 surveys.<sup>73</sup>

About public local **equipment for people at risk**, the three districts sum up 85 centres with different focus (38 only in Poblats Maritims). There is a specially high number of centres for aged people in PM (13 centres) and for disable people in AL (13 centres). There are also four municipal centres of social work for general population, with which we intend to collaborate in the pilots' implementation, as well as a district municipal administration in PM.

Regarding **sport facilities and areas for physical activity**, the self-perception of more than a half of residents in these districts is that they need more public sport facilities, especially in PM this rate reaches 74% of residents<sup>74</sup>. Residents do physical activity at near public spaces (street, parks, beach) and at existing sport facilities within the district (private and public ones in the case of CG, public ones in AL).

Also, there are 2 **public universities** in the area, Universitat de València social sciences campus, and Universidad Politécnica de València, with associated services and economic and leaisure activities around both campus.

There are 6 **municipal libraries** in the three districts, that is two libraries per district.

<sup>71</sup> National Vulnerable Neighborhoods Catalogue, 2011, National Observatory of the Urban Vulnerability (Spanish Ministry of Transport, Mobility and Urban Agenda) ([https://www.mitma.gob.es/arquitectura-vivienda-y-suelo/urbanismo-y-politica-de-suelo/observatorio-de-la-vulnerabilidad-urbana/analisis-urbanistico-de-barrios-vulnerables/catalogos\\_bv](https://www.mitma.gob.es/arquitectura-vivienda-y-suelo/urbanismo-y-politica-de-suelo/observatorio-de-la-vulnerabilidad-urbana/analisis-urbanistico-de-barrios-vulnerables/catalogos_bv))

<sup>72</sup> "El Español" newspaper, August 2021, based on data from the National Institute of Statistic of, 2020, ([https://www.elespanol.com/alicante/vivir/salud/20210806/comunidad-valenciana-medicos-enfermeros-habitante-espana/601940285\\_0.html](https://www.elespanol.com/alicante/vivir/salud/20210806/comunidad-valenciana-medicos-enfermeros-habitante-espana/601940285_0.html))

<sup>73</sup> Source: Statistics Office of the City of Valencia, section Health Assistance (<https://www.valencia.es/cas/estadistica/anuario-estadistica?capitulo=5>)

<sup>74</sup> Source: Infobarómetro Municipal d'opinió ciutadana. Setembre 2019. Statistics Office of the City of Valencia, .

Detailed data of this section can be found in the Table a4 of Annex 3.

#### Layer 4: General socio-economic, cultural and environmental conditions

##### CLIMATE CONDITIONS IN THE CITY OF VALENCIA

Valencia is a city with Mediterrean climate. It has hot summers and mild winters. In 2020, its average annual temperature was 18,9°C, with a maximum of 41,4°C in August and a minimum of 1,8°C in January. It had 50 days above 30°C. Besides that, Valencia has very high levels of relative humidity, 75% on average at the station of the Polytechnic University of Valencia (Algiros), reaching a concerning maximum of 83% (detailed data in the Table a5 of Annex 3).

The area of intervention is also affected by heat islands, especially the zones in AL and CG more close to the city Centre, where a temperature rise of 1-2°C is registered by night in summertime respect to the zones less urbanized<sup>75</sup>.

We expect our target population to be especially affected by these conditions. Although Valencia has not extreme temperatures in wintertime (and partly because of that), the housing stock is generally poorly insulated and often lack of proper heating facilities (there are around 9% of people without any kind of heating system and many relying only on electric radiators). As a result, the low temperatures combined with high humidity levels at home can lead to very unhealthy conditions in low income households. Equally, the high temperatures in the summer are hard to bear for people that have no cooling systems or cannot afford electric air conditioning, especially for physically vulnerable ones such as aged adults. Additionnally, sporadic high rainfall in some moments of the year can cause leaks and floodings in ground floors.

Comfort levels related to temperature and humidity throughout the year are shown in the figures below<sup>76</sup>.

The figure below is a compact characterisation of the entire year of hourly average temperatures, where we can see the specific month and time of the year when climate conditions will be more difficult (cold/warm zones).

<sup>75</sup> Heat islands in the City of Valencia viewer of Green Urban Data ([Indicadores Ambientales \(greenurbandata.com\)](https://indicadoresambientales.greenurbandata.com/)), 2018

<sup>76</sup> Climate and Average Weather Year Round in Valencia, 2013-2021 average, by [©WeatherSpark.com](https://weatherspark.com/y/42614/Average-Weather-in-Valencia-Spain-Year-Round#Figures-Temperature) (<https://weatherspark.com/y/42614/Average-Weather-in-Valencia-Spain-Year-Round#Figures-Temperature>)

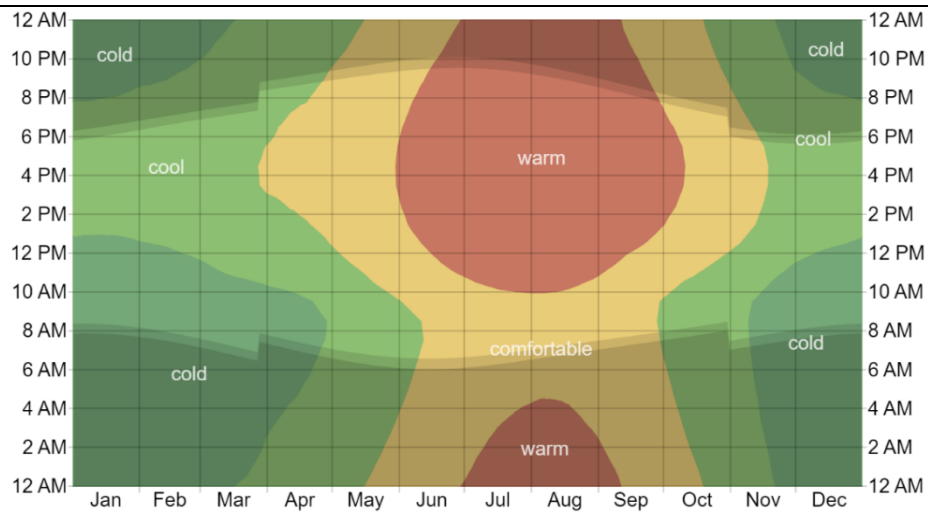


Figure 48. Average hourly temperature of the year, color coded into bands  
The shaded overlays indicate night and civil twilight. @weatherspark.com

Figure 49 shows the percentage of time spent at various humidity comfort levels throughout the year. In Valencia, the muggier period of the year lasts for 3-4 months, from June to October, during which time the comfort level is muggy, oppressive, or miserable at least 19% of the time. The month with the most muggy days is August, with 23 days that are muggy or worse.

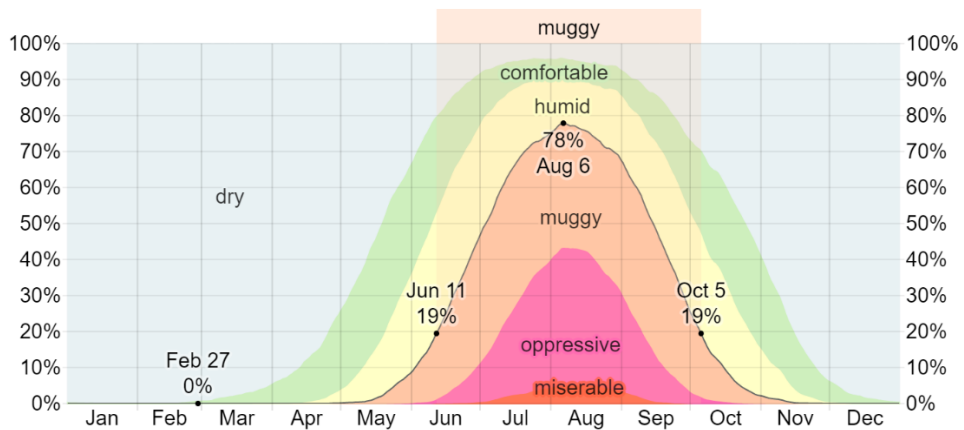


Figure 49. The percentage of time spent at various humidity comfort levels, categorized by dew point. ©WeatherSpark.com

## CLIMATE CHANGE

The threats of climate change to the physical space and comfort of cities in the Mediterranean zone, area especially vulnerable, focus on the following main issues: the warming of the environment, with greater occurrence of extremely high temperature events, water scarcity and the increased risk and intensity of flooding due to

extreme rainfall in some moments of the year. These phenomena will affect the districts of intervention, including the forecasted sea level rise because of their proximity to the sea.<sup>77</sup>

### GREEN AND BLUE AREAS

Regarding green areas, the districts of intervention are in the levels of the city average or above, ranging from 3% (PM) and 9%(CG) of the total area. A complete map of Valencia green areas can be found in the Table a5 of Annex 3. PM and AL are over the average as for green area surface per inhabitant, but not CG. These statistics include green areas, gardens and urban parks, but not Green River Turia space, which borders with CG and whose population can also enjoy. Another issue to consider is the distribution of green areas inside the districts and the accessibility or facility for people to enjoy them. This deals with equity matters.

Regarding blue areas, our area of intervention (more concretely, PM district) is limited in the East with the Mediterranean Sea and in the South with the Albufera, lagoon and estuary (and Natural Park) with a high ecological value.

### AIR POLLUTION

Recent studies have shown that Valencia is the second city more contaminated in Spain due to an annual air suspension particles level above the limit set by the World Health Organisation. Camins al Grau would be one of the 14 neighborhoods worst ranked in the city.<sup>78</sup> Equally, another expert evaluation of the air quality based on a NO<sub>2</sub> mobile network of sensors across the city reports 34,6% citizens living above the limit recommended for the protection of human health in the City of Valencia in 2019. One of the affected zones is the east of the city (including zones of our intervention area in PM and CG), due to emissions from the Valencian port<sup>79</sup>.

### MOBILITY

Valencia City has been enabling cycling zones increasingly these last years and accounts now for around 200 km of cycling paths. In our area of intervention, the three districts are well equipped in relation to cycling paths as well as bike stations and anchorages (around the city average in PM and CG, 7-8 anchorages per 1000 inhabitants, and even more in AL, with 14,6 anchorages).<sup>80</sup>

It is also an area well connected with the city Centre through the public transport networks, namely, underground, bus and tramway.

<sup>77</sup> Estrela Segrelles, C. E., Pérez Martín, M. Á., and Gómez Martínez, G.: Climate Change Impacts on a Mediterranean Coastal Wetland due to Sea Level Rise (L'Albufera de Valencia, Spain), EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-1599, <https://doi.org/10.5194/egusphere-egu21-1599>, 2021.

<sup>78</sup> Articles in the newspapers: [Las Provincias](#), Jan. 2020, and [ABC](#), Jun 2021

<sup>79</sup> Edgar Lorenzo-Sáez et al 2021 Environ. Res. Lett. 16 054072 ([Assessment of an air quality surveillance network through passive pollution measurement with mobile sensors - IOPscience](#))

<sup>80</sup> Statistics Office of the City of Valencia, Transport section ([Cap03.xlsx \(live.com\)](#))

## **SOCIO ECONOMIC DEVELOPMENT OF THE AREA**

As a historically deprived area with people in vulnerable situations, the intervention districts (especially Poblat Marítim or PM) has been objective of several interventions and pilots within European funded projects, aimed at its social and economic revitalisation, as well as improving other relevant issues for quality of life of the living population, such as urbanism, social issues, Centres and initiatives, interventions to improve health, sustainable mobility or energy efficiency: Valuecare, MatchUp, EDUSI (integral plan for urban regeneration of some areas and revitalisation).

Barris Inclusius at PM reinforcing social services work with vulnerable people has been another municipal initiative developed, Healthy Loneliness in Algiros (AL), culture activities and equipments (municipal theaters TEM and La Mutant), social and urban innovation Centre (Las Naves) and future entrepreneurship and citizen lab La Farinera, both in Camins al Grau (CG), Municipal Energy Office at Algiros for energy assessment and fight against Energy Poverty for citizens in AL, La Marina, seaside front line formerly owned by Valencia Port and used for America's Cup, and now recovered and delivered to the city for citizen leisure activities.

Valencia City Council is fully aligned with WB framework through a set of local strategies about health and sustainability already mentioned in section 2.3. As described below, amongst the most significant are the creation of the Energy Office of Valencia, the local strategy Valencia Healthy city or the the initiative Missions València 2030 deployed by Las Naves.

## **ENERGY PRICES IN SPAIN**

Energy cost is a variable which particularly affects our target population, which has already difficulties in paying energy bills and keeping good comfort in their homes.

Energy prices have followed an increasing trend in Spain in the last decade, but has especially accelerated its rise in the last months (in paralell with other European countries), reaching historic high levels. At present (November 2021), the cost is almost 5 times the cost of the same month in 2020. An average household electricity bill (PVPC tariff) is 95,9 euros, 35% more than in 2020.<sup>81</sup> Electricity price's and bills' evolution is shown in the Table a5 of Annex 3.

<sup>81</sup> Data from website of NGO Organización de Consumidores y Usuarios, OCU (Consumers and users' organisation), [Precio de la electricidad | OCU](#)

Some protection measures have been put in place to protect vulnerable consumers (taxes reduction, increase of the coverage of the existing assistance programs, extend moratorium to disconnect electricity supply, etc) but many people are still strongly affected by this problem that does not seem to change in the short term<sup>82</sup>.

#### 8.4.2. Target population data analysis and conclusions

##### a. Needs and Assets of the Target Population

##### NEEDS/ WEAKNESSES (to be minimized through the WUP)

AL seems to have a sociodemographic vulnerability due to an aged population, while PM and CG present economic vulnerability with lower incomes than the city average and higher percentages of people at risk of poverty, especially PM. Health outcomes are poorer in PM and health inequalities seem to be higher in this district as well.

Table 26. Needs of the target population and aspects to be considered at WUP (Valencia)

NEEDS/ WEAKNESSES	ASPECTS TO BE CONSIDERED AT WUP
<b>General sociodemographic context</b>	
Lower income than city average, with some specific areas with high levels of poverty, bad housing, population in high degree of vulnerability (Roma, migrants...)	Economic support, economic flexibility (e.g., for bills payments), low-cost or no-cost solutions
Aged population (especially in AL)	Population susceptible to be in energy vulnerability and thus potential WB participants. Important to make accessible the information and resources for them and to include activities to tackle unwanted loneliness...

<sup>82</sup> Barrella, R., 2021, *Energy Price Crisis impacts on Energy Poverty in Spain*, Dic. 2021 ([https://www.eppedia.eu/sites/default/files/2021-12/Barrella\\_2021%20Energy%20Price%20Crisis%20in%20Spain\\_Barrella\\_EP-pedia.pdf](https://www.eppedia.eu/sites/default/files/2021-12/Barrella_2021%20Energy%20Price%20Crisis%20in%20Spain_Barrella_EP-pedia.pdf))



<b>Layer 1: Individual lifestyle factors</b>	
Lower educational levels/ background	To make technical information easy, support and empowerment to address some issues
Health problems stemming from/aggravated by Energy Poverty	Detection
Population in PM shows less healthy habits and more prevalence of overweight and obesity	Activities for health promotion
<b>Layer 2: Social and Community networks</b>	
Population in risk of unwanted loneliness (AL)	Community networks and community support actions
Main concerns of population: unemployment, money	Economic support, economic flexibility (e.g., for bills payments), low-cost or no-cost solutions
<b>Layer 3: Living and working conditions</b>	
High unemployment rates, especially in women. Main sector of unemployment. Trade and services	Economic support, economic flexibility (e.g., for bills payments), low-cost or no-cost solutions
Old housing (PM+CG) in general, and specific poor and bad conditions in some areas where vulnerable people live	Better housing conditions to mitigate hot, cold and humidity
Some energy saving measures already implemented in many households (low consumption light bulbs, etc.)	Good acceptance expected for the people who has not them implemented yet
Some energy measures not enough implemented across the city (e.g., insulating windows)	Room for improvement in the project
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>	

4 months/year of relative humidity combined with low/high temperatures that hinder comfort. Districts are near the sea.	better housing conditions to mitigate hot, cold and humidity
Heat waves. Almost 2 months of high temperatures.	better housing conditions to mitigate hot, cold and humidity
Area more vulnerable to effects of climate change.	Resilience building, awareness of the problem
Inequal spatial distribution of green areas for population	better housing conditions to mitigate hot, cold and humidity
More contamination in the area close to the port (PM, CG)	Awareness of the problem
Current context of energy prices increase	Economic problem aggravated, awareness of their rights and give them information about new public resources

## ASSETS FOR HEALTH AND WELLBEING (to be promoted through the WUP)

Table 27. Assets of the target population and aspects to be considered at WUP (Valencia)

ASSETS FOR HEALTH AND WELLBEING	ASPECTS TO BE CONSIDERED AT WUP
<b>Layer 1: Individual lifestyle factors</b>	
Good self-perception of health	To be maintained
Relative high levels of happiness	Positive attitude for changes
Population in CG+AL shows healthier habits	Population with more health literacy and likely keen to adopt new health habits
<b>Layer 2: Social and community networks</b>	

Strong neighbourhood identity and sense of belonging	Community support activities
Good associative network (cultural, social care, sports)	Recruitment
Active citizen and community initiatives to promote health (Consells de Salut, Mihsalud, zona santiago)	Recruitment, detection, community support activities
Active and diverse community networks	Recruitment, detection, community support activities
Active and organised civil society	Recruitment, detection, community support activities
Desire to make change happen	Recruitment, detection, community support activities
Health and housing as important concerns for people	Dissemination, training, learning. Good acceptance of WB
High levels of cohesion among people. Neighbourhood ties, links.	Recruitment, detection, community support activities
Strong support from informal support networks in AL+PM	Recruitment, detection, community support activities
Institutions that attract people: municipal markets and Universitat Popular	For dissemination and recruitment
<b>Layer 3: Living and working conditions</b>	
Satisfaction with housing	Attachment to their homes and maybe desire of making them more comfortable and easier to live in

Good provision of health and social care services and Centres in comparison with other parts of the city	For recruitment, detection, training
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>	
Previous EU interventions and pilots in the area.	Project can benefit from experience, knowledge, former alliances and mapping
Oficina Municipal de la Energía in one of the districts	Project can benefit from its previous experience in these districts and an easier access to the target population.
Network of local stakeholders to fight against Energy Poverty (Connecta Energía- Las Naves)	Governance for WUP
Survey to map Energy Poverty in the city (2016)	Knowledge to be included
Fight against Energy Poverty is a priority for current local government	Local Strategy Against Energy Poverty
Supportive municipal policy in health issues	Support and synergies

València WUP will maximise the assets, especially those identified in Layer 2, as main strengths. Interventions based on community action and support, social capital at these districts, through the connection and involvement of the current community networks, NGOs working in the territory, neighbourhood associations, public health and social care institutions (Layer 3), will be one of the main pillars of WUP.

**b. Causes for energy poverty in the pilot area and effects on health. Why our target population ends up with energy poverty?**

The pathway or process that explains how people end up with Energy Poverty in all pilots can be summarised at the figure below. It also shows the effects of Energy Poverty in mental and physical health of people, some of them measured during the project for the research evaluation. The orange-coloured boxes are the areas where this specific WUP will intervene through its different actions, minimising needs and maximising assets of these fields. Please note that the outline of some boxes has also been coloured

based on its corresponding layer in the social ecological model (see figure legend). Green boxes contain the measurements that all pilots will take during the project for evaluation purposes.

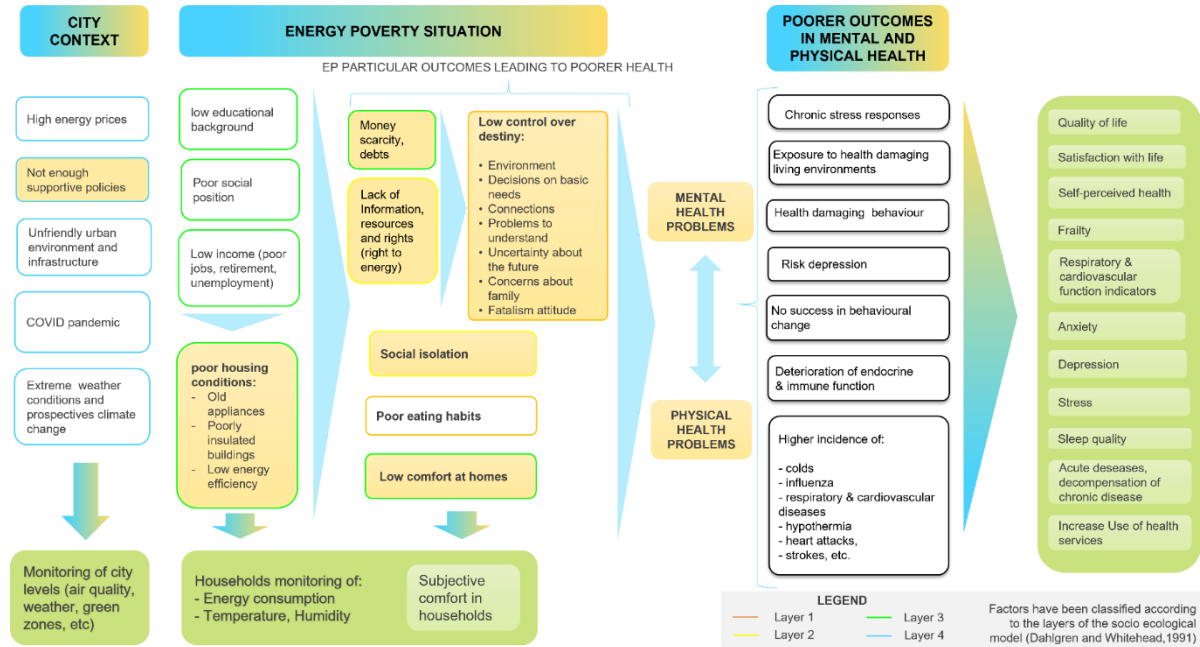


Figure 50. València pilot pathway of Energy Poverty causes and effects in health

Basically, a combination of some determinants identified in layer 4 and layer 3 are at the core of the causes: a situation of low economic income households, people unemployed or retired or with precarious jobs, living in poor housing conditions (because of the low income), old houses, poorly insulated, damp, with old and high consuming domestic appliances, and therefore a low energy efficiency. They are usually located in unfriendly urban environments (few green zones, especially affected by heat waves) and moreover, these districts are also near the sea, so humidity is higher than in other parts of the city. A rising trend of high energy prices (influenced also by climate change conditions and energy sources depletion) has aggravated the situation and increased the people in risk of Energy Poverty. The profile is also combined with a poor social position and lack of support network which makes them population in risk of social vulnerability (older adults, migrants, Romani, for instance) and they usually have low educational background and less access to public resources available and their rights, such as the right to energy. And even when they are finally assessed, complex subjects such as understanding bills or technical concepts of energy efficiency need to be very well explained to be properly understood and applied. Women and women-led households are usually more affected by Energy Poverty than men, due to the gender economic gap, especially in aged adults and also their bigger presence at home and in household responsibilities, often with depending children. Besides that, women are also key actors to take action against EP due to their usual role in

households decisions making. Due to these reasons, special attention will be paid on gender issues and exposed in Deliverable 3.1.

Hence, debts and arrears finally appear, and people must face trade-offs on basic daily life issues such as choosing between paying bills or eating, not using heating for showers and similar situations. Concerns on the future and on family members (such as children, which may have problems in their education and socializing, or older adults) arise and this leads to stress, depression and anxiety. Comfort at homes dramatically decreases since people do not use energy in order to save money, and this affects physical health because of worse nutrition habits (not cooking or buying fresh food), higher incidence of colds and respiratory and cardiovascular diseases, decompensation of chronic conditions, etc. The lack of comfort and the need to save prevents them from maintaining social interactions, so in many situations people ends up socially isolated. All this hinders their quality of life, self-perception of health; they may also accelerate frailty processes in some older adults, and it affects their sleep quality. At the end, they may use health services more often because of their poorer health conditions. People in some of the districts show less healthy habits and more prevalence of overweight and obesity (PM), other has high percentage of older people (AL) (layer 1) and this can lead to even poorer health outcomes.

## 8.5. Objectives of the WUP

### 8.5.1. Objective of the WUP

The Valencia WUP aims at reducing fuel poverty and its impacts on health and welfare in some vulnerable neighbourhoods, through actions across different levels: improving individual lifestyles, community networks of individuals, their home conditions and the institutional frameworks related with EP.

The actions will take place in the neighbourhoods of Algiròs, Camins al Grau and Poblat Maritims, and will be oriented to low-income households susceptible to be in Energy Poverty, being the two main inclusion criteria: (1) having arrears on bills and (2) not being able to keep comfort conditions at home.

Through the Energy Office of Valencia, participants will be assessed about how to improve their home conditions and health (including home visits, installation of efficiency kits and health parameters measurements), optimize their bills and solve their debt problems. Sensors to monitor comfort conditions and energy consumption will be installed at homes.

Under the WUP, a Citizen School of Right to Energy will be created, where participants will receive trainings about subjects of interest (energy efficiency, healthy habits...). Equally, they will be invited to more informal gatherings in their neighbourhood around specific topics, including spaces of mutual support to relieve stress and share experiences. WUP will also include more specialized trainings to key professionals in the neighbourhood about how to identify and cope with EP cases (health centres, social workers, education centres...). Finally, a work line of the WUP entails building institutional frameworks to fight fuel poverty at a municipal level.

### 8.5.2. Tomorrow's newspaper

To help envisioning the impact of the WUP, here below is an imaginary news in a fictitious newspaper talking about our project results in five years from now.

## A group of neighbours from Algiros create a community energy group to alleviate energy vulnerability in their community

January 2027



*Following the EU project Wellbased (2021-2024), focussed on assessing citizens about the fuel poverty problem and risks to health, and its potential solutions, Jacinta and other four members of her neighbourhood, empowered thanks to the trainings and workshops received during the project, have decided to take in hand this problem that heavily impacts their community. Using the knowledge and resources recently acquired in the EU project program about energy efficiency measures, bill optimisation and public resources, they will create their own citizen-led association to meet regularly and exchange information. Among their mid-term objectives, they also contemplate creating a solar energy community using their building roofs, to access cleaner and cheaper energy.*

*“Since we met in the Wellbased Citizen School of the Right to Energy, we felt this is an important matter that directly affects our health. We decided to come together to fight against this problem in our community and keep improving people’s conditions at home”, says Jacinta, who also declares that her health improved as a result of Wellbased interventions: “My home is better insulated now, I get fewer colds during winter, I can sleep well all night and I don’t have the anxiety I used to have waiting for the energy bill at the end of the month”.*



## 8.6. Overview of Actions

The following actions will be performed during the pilot project (detailed in 8.8.):

LIST OF WUP MAIN ACTIONS	
<b>Layer 1: Individual Lifestyle factors</b>	
	<ol style="list-style-type: none"> <li>1. Socio-energy audits</li> <li>2. Debt support</li> <li>3. Bill optimization</li> </ol>
<b>Layer 2: Social and Community networks</b>	
	<p>Creation of a “Citizen School of Right to Energy” that includes:</p> <ol style="list-style-type: none"> <li>4. Regular community meetings to engage participants and create a sense of group, including spaces of mutual support</li> <li>5. Training professionals on the detection of Energy Poverty</li> <li>6. Open talks about Energy Poverty, Energy Rights, Energy Efficiency, Healthy habits, etc.</li> <li>7. Artistic collective creation with schools/ artistic collective creation with community vulnerable people, around Energy Poverty</li> </ol>
<b>Layer 3: Living and working conditions</b>	
	<ol style="list-style-type: none"> <li>8. Delivery of energy efficiency kit: insulators, low-consumption bulbs (LED), consumption meters, switches to avoid “phantom energy use” ...</li> </ol>
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>	
	<ol style="list-style-type: none"> <li>9. Citizen campaign for Right to Energy</li> <li>10. Policy advocacy plan</li> <li>11. Mapping of available and potential life-enhancing programmes and initiatives</li> </ol>

## 8.7. Impact indicators

### 8.7.1. General impact indicators

Variable	Instrument/indicator	Data Source	Data collection
Sociodemographic details: age, sex, gender, occupation, etc.	Ad-hoc questionnaire	Online* questionnaire for data collection	<input type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: .....
Health and wellbeing measures			
Quality of Life	Quality of Life (HRQoL)	Online version of the clinical standardised questionnaires	<input type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants
Satisfaction with life	Satisfaction with Life Scale (SWL)		
Mental health: Depression	Depression and Anxiety Stress Scales (DASS/BSI)		
Mental health: Anxiety			
Mental health: Stress			
Self-perceived health	SF-12 Health Survey (SF12)		
Frailty	Self Perceived Multidimensional Impairment Index (SELFY-MPI)	Online version of the clinical standardised questionnaire	<input type="checkbox"/> Other: .....
Subjective comfort in households	Self-reported scale <sup>83</sup>		
Respiratory & cardiovascular function indicators	Peak flow measurement	IoT Home health control devices, real time monitoring	<input checked="" type="checkbox"/> Manual collection  m) <input type="checkbox"/> Directly by participants n) <input checked="" type="checkbox"/> By another stakeholder  <input type="checkbox"/> Collection through wearables devices  <input type="checkbox"/> Other: .....
	SpO2 measurement		
	Blood pressure measurement		
	Sleep quality measurement		
Incidence of the acute diseases	Number of Diagnosed acute diseases	Electronic Health Records direct	<input checked="" type="checkbox"/> Direct extraction

<sup>83</sup> Frontczak, M., Andersen, R. V., & Wargocki, P. (2012).

Decompensation of chronic disease	Number of diagnosed exacerbations all health settings (Emergencies acute units, hospitalisation, primary care)	extraction and/or online questionnaire	<input type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: .....
Readmissions	Admissions in the ED (emergency department), acute units or regular hospitalisation		
Use of primary attention services	Visits to the primary attention services distinct from those aimed at renewing the prescriptions		
Life experienced	Impressions, comments, experience and subjective perceptions captured in focus groups and interviews & codified	Qualitative analysis codified records	Partner responsible (UNIVLEEDS) will provide the methodology and keep the data collected
Energy efficiency evaluation			
Energy consumption	Yearly Kwh/month	Energy providers (DSOs) App	Definition in progress.
Household income spent on energy	% of income/Euros	Online questionnaires	<input type="checkbox"/> Questionnaire completed directly by participants  <input checked="" type="checkbox"/> Questionnaire completed by another stakeholder on behalf of participants  <input type="checkbox"/> Other: .....
Household conditions: temperature	Celsius Degree	IoT DT home sensors, real time monitoring	Definition in progress. To be detailed in D3.1
Household conditions: humidity	% Relative humidity		
Household conditions: air quality	CO2 and CO concentration		
City pollution	CO1, CH4, N2O, PM	SmartCity Open platforms (city-level/local data) Secondary sources (city reports, etc.)	<u>València al minut   Ajuntament de València (valencia.es)</u>
City air quality	CO1, CH4, N2O, PM, soot & smoke (wildfires, urban fire), specific gases, dust, etc.		
City weather	Rain rays per year,		

	Floods reported per year, Extreme heat days (>30°C) per year, Days below >5°C per year, Average temperatures, per season		<a href="#">Anuario Estadística - València (valencia.es)</a>  <a href="#">Anuario Estadística - València (valencia.es)</a>
City climate	Comparison between these measures and the 10-previous-year reports and the 25-previous-year reports		
City green spaces	Green spaces (m2) per km2 Existence, localisation and length of <i>urban heat islands</i> Trees and parks or any other green space (m2) in <i>urban heat islands</i> (km2), if any		

### 8.7.2. Pilot Specific indicators

PILOT SPECIFIC RESULT INDICATORS		
DESCRIPTION	KPI	DATA SOURCE
<b>Layer 1: Individual Lifestyle factors</b>		
Socio-energy audit	1 audit/participant	Project reporting
Debt solutions provided (cancellation, refinancing...)	80% of cases	Project reporting
<b>Layer 2: Social and Community networks</b>		
Regular community meetings	Min 12 (1/month)	Project reporting
Trainings on EP detection to professionals	Min 6	Project reporting
Open talks about energy issues	Min 6	Project reporting

Collective artistic creation	Min. 20 people engaged	Project reporting
<b>Layer 3: Living and working conditions</b>		
Efficiency kits delivered	1 kit/participant	Project reporting
<b>Layer 4: General socio-economic, cultural and environmental conditions</b>		
Policy Advocacy Plan	<ul style="list-style-type: none"> <li>· Positive response to inclusion of EP in statistics survey</li> <li>· Min. 3 Protocols / Guidelines creation</li> </ul>	Project reporting
Mapping of programmes and initiatives	· Min 8 meetings	Project reporting

## 8.8. WUP Detailed planification

ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 1.</b> Socio-energy audits	
Description	
<p>The first step for individual interventions, after the recruitment process, is to perform a socio-energy audit to assess the participant's home energy situation related to energy use, consumption, appliances, etc. outlining all the specifics. This will help the participant to identify where his/her home is losing energy and what steps he/she can take to improve energy efficiency. The audit will not only deal with energy aspects but also with health-related aspects of the individual, how the situation of the household is affecting the health and the wellbeing of the person and what to do in order to improve the situation. The starting point for deepen into the participants' current situation is to pass a comprehensive questionnaire, which will help us design a tailored intervention, which responds to his/her actual needs.</p> <p>This will allow to intervene on some of the detected needs in Chapter 2.3 and on low energy efficiency and poor housing conditions.</p> <p><b>When?</b> Once the participant has enrolled the project, making sure that fulfils the inclusion criteria. If the participant is derived from Social Services, he/she will be directly considered as suitable.</p> <p><b>Where?</b> Mainly at the Energy Office, or for special cases, at participant's home.</p> <p><b>How?</b> By fixing a face-to-face appointment with the participant, during which a comprehensive questionnaire will be filled. This questionnaire will include the collection of variables required for the evaluation framework of the project.</p>	
Outcome of the action	
<ul style="list-style-type: none"> <li>• To have deep knowledge on participants' profiles regarding energy use and socio-health particularities.</li> <li>• To provide with baseline information, helpful for deciding next steps and designing a customized intervention plan to cover participant's actual necessities.</li> </ul>	

Stakeholders involved	Period it covers (develop it on the next chart)
Energy Office (Valencia Clima i Energia) Las Naves	Socio-energy audits will be performed throughout the first part of the intervention period, as it corresponds to the first action of the individual intervention plan. Estimated M18-M24.
<b>Budget and resources</b> <b>(from Wellbased project or from other sources)</b>	
<p>The resources for deploying this action are the ones used currently in the Energy Office (managed by VCE), which will be strengthened thanks to the Wellbased contribution within the budget line for the development of household audits/training programmes/interventions for micro efficiency. Energy Office resources include (for this task and other ones): one specialist working full time in the Energy Office (annual remuneration about 30.000€), facilities, transport (if needed). Other tools for the development of the energy audit are still TBD.</p>	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 2.</b> Debt support
Description
Once performed the socio-energy audit, one of the first interventions is to deal with the current economic situation of the participant with respect to his/her energy supplier. Arrears on bills and debts are usual among vulnerable collectives which, due to the Spanish regulatory and policy environment, usually leads to issues such as losing control over tariffs, hindering bill optimization.

Dealing with debt splitting or accessing to aids or subsidies for electricity and gas supply becomes challenging to individuals not familiarized with these topics so one of the first steps of the intervention plan is to give support and advice for that matter.

**When?** Once performed the socio-energy audit, as soon as the current situation of the participant is well defined. This information can be collected on the same date as the socio-energy audit.

**Where?** At the Energy Office, as well as continuous communication by phone, e-mail...

**How?** Contacting, negotiating and representing (if necessary) with the energy supplier for debt splitting and with Social Services and/or NGOs for accessing specific aids or subsidies for debt payments.

### Outcome of the action

- To achieve a less stressing financing situation for the participant, which will allow him/her to take control over bills and energy use.

### Stakeholders involved

Energy Office (Valencia Clima I Energia)  
Las Naves

### Period it covers

(develop it on the next chart)

Socio-energy audits will be performed throughout the first part of the intervention period, as it corresponds to the first action of the individual intervention plan. Estimated M18-M24.

### Budget and resources

(from Wellbased project or from other sources)

The resources for deploying this action are the ones used currently in the Energy Office, which will be strengthen thanks to the Wellbased contribution within the budget line for the development of household audits/training programmes/interventions for micro efficiency. Energy Office resources include (for this task and other ones): one specialist working full time in the Energy Office (annual remuneration about 30.000€), facilities, transport (if needed).



ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 3.</b> Bill optimization	
Description	
<p>Once the participant has managed his economic situation with respect to arrears on bills and debt, given a previous debt support, he/she will be in a more relieved situation and will be able to optimize his energy bills.</p> <p>Bill optimization is based on the present and past energy consumption trends and intends to set an adequate pricing (avoiding extra, non-necessary expenses or additional services such as contingency insurances). It also includes assessing eligibility of the participant to access social tariffs (in Spain a social bonus covers up to a 40% of electricity bill costs for severe vulnerable citizens).</p> <p>Bill optimization also assess the possibility of adjusting the contracted power tariff (maximum power consumption permitted), adjusting it to the actual necessities of the participant based on historical data. Having a contracted power access higher or lower than needed results in considerable overpayments.</p> <p><b>When?</b> Once the participant has control over energy bills after regularizing his economic situation with respect to arrears on bills and debt with the energy suppliers.</p> <p><b>Where?</b> At the Energy Office, as well as continuous communication by phone, e-mail...</p> <p><b>How?</b> Analysing the current and historical energy consumption trends and contracted energy tariffs of the participant. Energy Office experts will use specific tools to perform the bill optimization and report the participant with different alternatives.</p>	
Outcome of the action	
<ul style="list-style-type: none"> <li>• After bill optimization the participant will have an adjusted tariff, paying the less possible for the consumed energy.</li> <li>• The participant will identify his consumption trends, which will allow him to make behavioural modifications that can help him/her having a relevant reduction of energy bills.</li> </ul>	
Stakeholders involved	Period it covers

	<b>(develop it on the next chart)</b>
Energy Office (Valencia Clima i Energia)	Bill optimizations will be performed throughout the first part of the intervention period, as it corresponds to one of the first actions of the individual intervention plan. Estimated M18-M24.
<b>Budget and resources</b> <b>(from Wellbased project or from other sources)</b>	
<p>The resources for deploying this action are the ones used currently in the Energy Office (managed by VCE), which will be strengthened thanks to the Wellbased contribution within the budget line for the development of household audits/training programmes/interventions for micro efficiency. Energy Office resources include (for this task and other ones): one specialist working full time in the Energy Office (annual remuneration about 30.000€), facilities, transport (if needed).</p>	

<b>ACTIONS OF YOUR WUP</b>
<b>Title (and number) of the action</b>
<b>ACTION 4.</b> Regular community meetings: “Esmorzars/Berenars Energètics”
<b>Description</b>
<p>Monthly gatherings included in the “Citizen School of Right to Energy” program.</p> <p><i>Note: the “Citizen School of Right to Energy” will be the label of the different collective activities planned in the neighbourhood aimed at providing knowledge and community building around energy issues, promoting peer-to-peer learning, access to public resources and empowerment based on the concept of Energy Right.</i></p> <p>These will be informal meetings (similar to the “Energy Cafes” initiatives) where participants will receive tips about energy efficiency, cutting bills... They will be invited to chat and exchange around these, and other topics of their interest related to Energy Rights and Health (topics yet to be defined). Spaces of mutual emotional support will be also created and encouraged in this space. Some healthy snacks and drinks will be provided.</p> <p><b>To whom?</b> Participants of Wellbased.</p>

**When?** Monthly meetings, at always the same day (e.g. first Monday of the month) and hour. Exact time yet to be defined but preferably brunch time (around noon) or afternoon (around 18h) to coincide with valencian meals habits (“esmorzars” or “berenars”).

**Where?** They will be carried out in key places of the neighbourhood familiar to the people (neighbourhoods' associations, pensioners' associations, Energy Office, cafeterias, schools... places yet to be defined).

**How?** Participants will be informed of this activity before engaging in the WB Project and also in their visit(s) to the Energy Office. They will have to register in advance.

This and the following actions described under Layer 2 interventions maximize the assets identified in these districts related to social capital, such as active associations framework, citizen solidary initiatives, community networks and proactive health and social care institutions.

Outcome of the action	
<ul style="list-style-type: none"> <li>- To provide WB participants and general public with energy and health advice</li> <li>- To give a friendly space for attendees to express themselves and talk about problematic issues</li> <li>- To strengthen the feeling of community</li> <li>- To empower people and activate them to fight for their rights</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)
Energy Office (Valencia Clima I Energia) Las Naves Community venues where the meetings will take place (TBD) and its representatives	M19-29 (preparation from M13)
Budget and resources (from Wellbased project or from other sources)	
For this action, we will need: <ul style="list-style-type: none"> <li>- facilities (venue, cleaning services...). This can be provided by the Energy Office of VCE or other community places such as associations' spaces, still TBD (capacity for around 25 people).</li> <li>- a communication campaign (brochures, leaflets...), led by Las Naves</li> <li>- one or two facilitators of the sessions, with remuneration still TBD</li> <li>- food provider, still TBD</li> </ul>	

ACTIONS OF YOUR WUP	
Title (and number) of the action	
<b>ACTION 5.</b> Trainings for professionals on the detection of energy poverty	
Description	
<p>Trainings included in the “Citizen School of Right to Energy” program.</p> <p>These trainings will be oriented to professionals from different fields to help them identify and act with people at risk of energy poverty in the area of intervention.</p> <p><b>To whom?</b> Professionals from the health centres (GPs, nurses, etc.) of the neighbourhood, social workers in municipal centres and education centres (schools, high-schools...), local NGOs – maybe more, still TBD.</p> <p><b>When?</b> 5 or 6 trainings across the twelve months of intervention, depending on the response and availability of the target groups.</p> <p><b>Where?</b> When possible, trainings will be carried out in their own facilities (health Centres, schools...) to facilitate their attendance. Other venues can be considered (e.g. Energy Office).</p> <p><b>How?</b> Our initial proposal is to have two sessions (2h each) on different days. The first session more informative, raising awareness about FP problem and available resources; and the second one, more participative, when we will discuss with them the best ways to identify people at risk, and the possibility of elaborating protocols’ procedures.</p>	
Outcomes of the action	
<ul style="list-style-type: none"> <li>- To provide workers from different fields with tools to detect people with energy vulnerability.</li> <li>- To raise awareness about fuel poverty problem in these fields.</li> <li>- Ideas and ways to establish formal procedures to detect FP in specific workplaces.</li> </ul> <p>As a mid/long-term consequence of the action, we expect:</p> <ul style="list-style-type: none"> <li>- a rise in vulnerable people attending the Energy Office and alleviating their situation.</li> <li>- Formal establishment of protocols and procedures for FP detection in these fields (see action number...)</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)

<p>Energy office (Valencia Clima I Energia)</p> <p>Las Naves</p> <p>Institutions attending the trainings:</p> <ul style="list-style-type: none"> <li>- Health centres</li> <li>- Municipal centres and their social work services</li> <li>- Schools and High Schools</li> <li>- Others (NGOs, associations,...)</li> </ul>	<p>M19-32 (preparation from M13)</p>
<p><b>Budget and resources</b></p> <p><b>(from Wellbased project or from other sources)</b></p>	
<p>For this action, we will need:</p> <ul style="list-style-type: none"> <li>- Facilities, provided by institutions receiving the training</li> <li>- a communication campaign, led by Las Naves</li> <li>- one or two facilitators of the sessions, with remuneration still TBD</li> </ul>	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 6.</b> Open talks
Description
<p>Activity included in the “Citizen School of Right to Energy” program.</p> <p>This action consists of talks (1-1,5h) for the general public about Energy Poverty, Energy efficiency, Energy Rights, Healthy habits and other topics still to be defined according to the needs identified.</p> <p><b>To whom?</b> General public, included Wellbased participants.</p> <p><b>When?</b> Once every three or four months.</p> <p><b>Where?</b> At Las Naves/Energy Office, depending on the number of attendees.</p>
Outcomes of the action

<ul style="list-style-type: none"> <li>- To raise awareness about fuel poverty problem</li> <li>- To provide people with useful tools, tips and resources to address energy vulnerability and health issues</li> <li>- To empower people and activate them to fight for their rights</li> </ul>	
<b>Stakeholders involved</b>	<b>Period it covers</b> (develop it on the next chart)
Oficina de la Energía (Valencia Clima i Energia) Las Naves	M19-29 (preparation from M13)
<b>Budget and resources</b> (from Wellbased project or from other sources)	
<p>For this action, we will need:</p> <ul style="list-style-type: none"> <li>- Facilities, provided by Las Naves/Energy Office</li> <li>- a powerful communication campaign, led by Las Naves</li> <li>- Several speakers, with remuneration still TBD</li> </ul> <p>Budget from Wellbased project will be allocated to this action (exact amount still TBD).</p>	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 7.</b> Artistic collaborative workshops to raise awareness about Fuel Poverty
Description
<p>Activity included in the “Citizen School of Right to Energy” program. This action is still under definition. It will involve two artistic initiatives still to be defined (collective mural, short-film, creative writing, collage techniques, etc.)</p> <p><b>To whom?</b> (1) Students in schools (for awareness raising) and (2) participants of Wellbased (ideally, this activity would emerge from the regular meetings)</p>
Outcome of the action

<ul style="list-style-type: none"> <li>- To raise awareness about Energy Poverty problem</li> <li>- To give a friendly space for participants to express themselves, talk about problematic issues, have fun and develop art skills</li> <li>- To strengthen the feeling of community</li> <li>- To empower people and activate them to fight for their rights</li> </ul>	
<b>Stakeholders involved</b>	<b>Period it covers</b> (develop it on the next chart)
Oficina de la Energía (Valencia Clima I Energia) Las Naves Institutions participating in the activity (e.g. schools)	M19-29 (preparation from M11)
<b>Budget and resources</b> (from Wellbased project or from other sources)	
For this action, we will need: <ul style="list-style-type: none"> <li>- facilities, provided by institutions receiving the training/Energy Office</li> <li>- a communication campaign, led by Las Naves</li> <li>- one or two facilitators of the sessions, with remuneration still TBD</li> </ul> Budget from Wellbased project will be allocated to this action (exact amount still TBD).	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 8.</b> Delivery of energy efficiency kit
Description
After acquiring deep knowledge on the participant necessities thanks to the socio-energy audit, a customized energy efficiency kit will be delivered. This kit will allow the participants to improve energy micro efficiency at home, reducing energy bills with very low cost.

This action covers the technical part of the intervention plan, improving energy efficiency at home by reducing energy consumption.

**What?** The kit includes:

- Weatherstripping to improve thermal insulation and avoid air currents in the house, installed in door and window frames.
- Light bulbs and electrical switchgear to reduce lighting consumption, also improving comfort.
- Power strips and timers, which allow the equipment to be disconnected during the hours that are not needed, thus avoiding phantom or "stand-by" consumption.

**When?** After socio-energy audit, necessary to customize the kit to the participant's needs.

**Where?** Delivery at the Energy Office or at participant's home, depending on participant's will and pandemics situation.

**How?** Installed by the Energy Office worker or by the participant him/herself, giving him the necessary technical indications.

A protocol will be defined for the home visit and installation of the kit, based on those followed in the Energy Office, ensuring minimal intrusion and always considering informed consent signed by the participants (including all members of the family or household inhabitants).

Outcome of the action	
<ul style="list-style-type: none"> <li>• The energy efficiency kit will allow the participant to reduce his/her energy bills by reducing energy consumption.</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)
Energy Office (Valencia Clima i Energia)	The energy efficiency kit will be delivered throughout the first part of the intervention period, as there won't be much delay between the socio-energy audit (first step) and the provision of the kit. Estimated M18-M24.
Budget and resources	



(from Wellbased project or from other sources)
<p>The resources for deploying this action are the ones used currently in the Energy Office (managed by VCE), which will be strengthened thanks to the Wellbased contribution within the budget line for the development of household audits/training programmes/interventions for micro efficiency. Energy Office resources include (for this task and other ones): one specialist working full time in the Energy Office (annual remuneration about 30.000€), facilities, transport (if needed). The Energy Office could receive, as well, some of the technical components of the kit as part of CSR from industrial entities.</p>

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 9.</b> Citizen campaign on Right to Energy
Description
<p>Activity included in the “Citizen School of Right to Energy” program. This action is still under definition. It consists of a bunch of initiatives to raise awareness about the issue of Fuel Poverty and spread the concept of Energy Right across the general public.</p> <p>Through communication activities (such as street activities, banners, brochures, exhibitions... still to be defined), people will be informed about the scale of the problem, nationally but also internationally. Collaboration with NGOs and social movements around Fuel Poverty will be contemplated. Equally, a powerful campaign in social networks will be designed.</p> <p>Ideally, in the first phase of this campaign, we will take profit to give visibility to the Wellbased project and recruit people for the program.</p> <p><b>To whom?</b> General Public</p> <p><b>When?</b> In parallel with the rest of the pilots’ actions and trying to make them coincide with wider events such as the Fuel Poverty Week or local initiatives (e.g Aiora por el Clima, municipal market, etc.).</p> <p><b>Where?</b> Different venues, TBD</p>
Outcomes of the action
<ul style="list-style-type: none"> <li>- To raise awareness about fuel poverty problem</li> </ul>

- To empower people and activate them to fight for their rights	
Stakeholders involved	Period it covers (develop it on the next chart)
Oficina de la Energía (Valencia Clima I Energia) Las Naves Other institutions	M18-24 (preparation from M13)
Budget and resources (from Wellbased project or from other sources)	
<p>For this action, we will need:</p> <ul style="list-style-type: none"> <li>- communication resources (both personal working time and materials), from LNV and VCE</li> <li>- depending on the content, facilitators of the activities</li> <li>- depending on the content, venues for the activities</li> </ul> <p>Budget from Wellbased project will be allocated to this action (exact amount still TBD).</p>	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 10.</b> Policy Advocacy Plan
Description
<p>The following actions are foreseen regarding policy incidence and advocacy:</p> <ul style="list-style-type: none"> <li>- Promotion of local strategy to fight against Energy Poverty</li> <li>- Generation of protocols or guides for EP identification (at social and health area)</li> <li>- Generation of evidence for monitoring and decision-making at policy makers level (e.g., inclusion of EP measurement in statistics and surveys)</li> <li>- Creation of a working space to include in political agenda debt cancellation and social tariff improvement</li> </ul> <p>We will organise internal meetings during the project to address these issues and set up a focus action plan.</p>

Outcomes of the action	
<ul style="list-style-type: none"> <li>- More EP awareness at institutions level</li> <li>- Progress towards a local strategy against EP</li> <li>- Better monitoring of EP at city level</li> <li>- Improvement of current municipal coverage of energy vulnerable population</li> </ul>	
Stakeholders involved	Period it covers (develop it on the next chart)
Oficina de la Energía (Valencia Clima I Energia) Las Naves Other institutions still to be defined	M18-34
Budget and resources (from Wellbased project or from other sources)	
Budget from Wellbased project will be allocated to this action (exact amount still TBD).	

ACTIONS OF YOUR WUP
Title (and number) of the action
<b>ACTION 11.</b> Mapping of available and potential life-enhancing programmes and initiatives
Description
Mapping of available and potential life-enhancing programmes and initiatives, informing and providing with clear guidelines, trying to make them accessible for project participants. Potential actions include: <ul style="list-style-type: none"> <li>• Mapping of aids, subsidies and/or grants for home renovation and appliances substitution, especially those which enable beneficiaries not dealing with financial issues or risks. Part of Next Generation EU funds may be used for house renovation programmes at national, regional and/or local level. These programmes will be thoroughly studied, exploring opportunities for vulnerable households to benefit from them.</li> </ul>

<ul style="list-style-type: none"> <li>• Mapping of corporate social responsibility (CSR) initiatives related with Energy Poverty issues. Corporations and other entities related with electrical materials, household appliances, insulators or heating/cooling installations may have CSR programmes useful for vulnerable households at the local level. Mapping and listing of these initiatives could facilitate access for project participants and encourage others to follow their example.</li> <li>• Explore opportunities of participation in related initiatives, such as Energy Communities projects with a Right to Energy approach. The deployment of Energy Communities and other collective energy generation initiatives are foreseen in the mid-term at the city level. Those with a social agenda may be helpful to make clean, cheap energy accessible to vulnerable households.</li> </ul>	
<b>Outcome of the action</b>	
<ul style="list-style-type: none"> <li>• Make accessible to vulnerable households available and potential life-enhancing programmes at multiple levels, tackling structural issues such as household conditions and access to cheap, clean energy.</li> </ul>	
<b>Stakeholders involved</b>	<b>Period it covers</b> <b>(develop it on the next chart)</b>
Oficina de la Energía (Valencia Clima I Energia) Las Naves Other institutions still to be defined	M18-30 (preparation from M13)
<b>Budget and resources</b> <b>(from Wellbased project or from other sources)</b>	
Budget from Wellbased project will be allocated to this action as well as the internal resources of LNV and VCE (exact amount still TBD).	

Table 28. Timeline of WUP (València)

	2022												2023												2024											
NATURAL MONTHS	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07					
PROJECT MONTHS	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41					
Layer 1 – Individual Lifestyle factors																																				
ACTION 1. Socio-energy Audits																																				
1.1. Fix an appointment with the participant																																				
1.2. Pass comprehensive questionnaire																																				
1.3. Analysis of results and design of customized intervention plan																																				
ACTION 2. Debt support																																				
2.1. Collection of data about economic situation (arrears and debts)																																				
2.2. Give advice and support on available debt support mechanisms																																				
2.3. Contacting and negotiating (if necessary) with energy suppliers and Social Services																																				
ACTION 3. Bill Optimization																																				
3.1. Collection of data about energy use trends and billing																																				
3.2. Proposal of bill optimization																																				
3.3. Support on bureaucratic procedures																																				

	2022												2023												2024						
NATURAL MONTHS	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	1 0	1 1	1 2	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	1 0	1 1	1 2	0 1	0 2	0 3	0 4	0 5	0 6	0 7
PROJECT MONTHS	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	2 0	2 1	2 2	2 3	2 4	2 5	2 6	2 7	2 8	2 9	3 0	3 1	3 2	3 3	3 4	3 5	3 6	3 7	3 8	3 9	4 0	4 1
Layer 2 – Social and Community networks																															
ACTION 4. Regular community meetings																															
4.1. Define sessions																															
4.2. Look for the venue(s)																															
4.3. Select facilitator(s)																															
4.4. Prepare communic.																															
4.5. Plan food delivery																															
4.6. Monthly meetings (& eval.)																															
ACTION 5. Trainings on EP detection																															
5.1. Attendees definition																															
5.2. Design of content																															
5.3. Select facilitator(s)																															
5.4. Prepare communic.																															
5.5. Trainings (2 sessions/training)-TBD																															
5.6. Internal follow-up meeting																															

	2022												2023												2024											
NATURAL MONTHS	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	1 0	1 1	1 2	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	1 0	1 1	1 2	0 1	0 2	0 3	0 4	0 5	0 6	0 7					
PROJECT MONTHS	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	2 0	2 1	2 2	2 3	2 4	2 5	2 6	2 7	2 8	2 9	3 0	3 1	3 2	3 3	3 4	3 5	3 6	3 7	3 8	3 9	4 0	4 1					
ACTION 6. Open talks																																				
6.1. Define talks topics																																				
6.2. Define venue(s)																																				
6.3. Select facilitator(s)																																				
6.4. Prepare communication																																				
6.5. Open Talks (& eval.)-TBD																																				
ACTION 7. Artistic workshops																																				
7.1. Design of content, recipients, format																																				
7.2. Define venue(s)																																				
7.3. Select facilitator(s)																																				
7.4. Prepare communication																																				
7.5. Workshops (& eval.)-TBD																																				
Layer 3 – Living and working conditions																																				
ACTION 8. Delivery of Efficiency Kits																																				
8.1. Analysis of needs based on audit																																				
8.2. Customize efficiency kit																																				
8.3. Define appointment with participant																																				
8.4. Installation of the kit and brief training																																				

	2022												2023												2024							
NATURAL MONTHS	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	1 0	1 1	1 2	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	1 0	1 1	1 2	0 1	0 2	0 3	0 4	0 5	0 6	0 7	
PROJECT MONTHS	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	2 0	2 1	2 2	2 3	2 4	2 5	2 6	2 7	2 8	2 9	3 0	3 1	3 2	3 3	3 4	3 5	3 6	3 7	3 8	3 9	4 0	4 1	
Layer 4 - General socio-economic, cultural and environmental conditions																																
ACTION 9. Citizen campaign for Right to Energy																																
9.1. Define activities and content																																
9.2. Design communication material and timeline																																
9.3. Select venues																																
9.4. Others, depending on the kind of activities defined																																
9.5. Campaign implementation (& eval.)																																
ACTION 10. Policy Advocacy Plan																																
ACTION 11. Exploring sustainable business models																																



## Chapter 9: Conclusions

This deliverable presents the urban programmes carried out under Wellbased project in seven different cities: Edirne (Turkey), Heerlen (Netherlands), Jelgava, (Latvia), Leeds (United Kingdom), Óbuda - Békásmegyer district (Budapest, Hungary), Skopje (Macedonia) and Valencia (Spain).

These seven cities represent different urban contexts based on the diverse characteristics of their population, more or less supportive policies on Energy Poverty, socio economic development of their area, wide range of climate conditions, etc. Each programme has been adapted to the local situation. Based on the information provided by each pilot in this document, main aspects of their WUPs (namely: their thematic scope, target population and actions) are briefly described and compared in the following summary.

### THEMATIC SCOPE

The participant countries present different degrees of social vulnerability, and especially Energy Poverty. As shown in Figure 51, there is a distinctive contrast between northern/western and southern/eastern European countries. United Kingdom and the Netherlands have lower indexes of Energy Poverty than Spain, Latvia or Hungary (these three last countries are classified as high, very high and extreme EP, respectively). Non EU-countries North Macedonia and Turkey seem to have even more severe Energy Poverty rates, significantly higher than EU averages, based on the data provided by EUROSTAT<sup>84</sup>.

The different EP levels and the socioeconomic background of the countries also means very different political backgrounds and experience. According to the data provided, some countries and cities already have several policies in force, measures and projects (more active countries seem to be UK and Netherlands), while others lack of almost any coverage for people at risk of EP or specific EP official programme (e.g., Turkey). However, progress can be seen in many countries in the recent years, such as the national strategies of EP in Spain and North Macedonia, better EP monitoring and study, vulnerable consumer protection and subsidies (with extra measures in the recent situations of COVID and/or energy prices hikes) in most of the countries, or the enlarged natural gas provision in Turkey to provide better heating to more population. Besides that, EU structural funds are allowing important energy efficiency housing improvements in many EU countries.

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<sup>84</sup> [Eurostat - Data Explorer \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table)

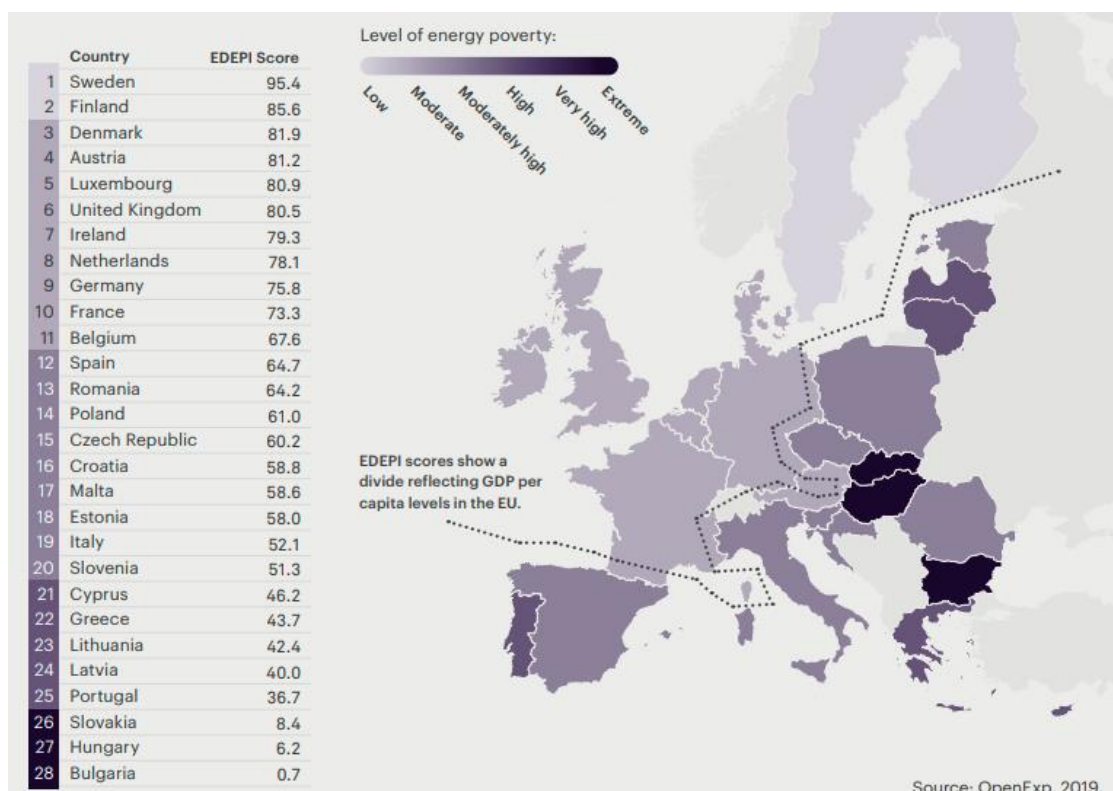


Figure 51. European Domestic Energy Poverty Index (EDEPI)

Source: OpenExp, 2019

## TARGET POPULATION

Target population has been thoughtfully described for each pilot city. Regarding some sociodemographic patterns, four of the seven pilots are likely to address an aged population (Heerlen, Jelgava, Óbuda - Békásmegyer, Valencia). There also seems to be a significant prevalence of Roma population in the areas of intervention (Edirne, Óbuda - Békásmegyer, Skopje and, to a lesser extent, Valencia).

Sound associative networks have been identified in almost all the areas of intervention, asset that the programmes will try to enhance and take advantage of in the recruitment process and community activities. Specific local programmes on health promotion currently active have been also mentioned in Óbuda - Békásmegyer, Jelgava and Valencia.

Old and poorly insulated buildings with inefficient heating systems characterise all WUPs target populations, although with different characteristics in each case. Mainly: (1) Edirne: substandard Roma houses with leaking roofs and major deficits; (2) Heerlen: social housing in neighbourhoods deteriorated by the closure

of mines in the recent past; (3) Jelgava: Soviet Union multi-storey buildings<sup>85</sup> with gas central heating that can lead to mould and other problems due to inappropriate user behaviour; (4) Leeds: high-rise blocks of social housing; (5) Óbuda - Békásmegyer: outdated housing stock heated with solid fuel that lead to poor air quality; (6) Skopje: substandard housing without central heating, mostly from Roma population; (7) Valencia: small and damp apartments near the beach often without air heating system and poorly insulated windows.

Regarding health conditions, all pilots report poorer levels in the areas of intervention compared with city averages. Some of the chronic diseases mentioned are respiratory problems (Edirne), hypertension (Edirne, Óbuda - Békásmegyer, Valencia), malnutrition (Edirne, Heerlen, Valencia), circulatory system problems (Jelgava) and risk of depression and anxiety (Heerlen). Alcohol and drug abuse are also reported (Edirne, Jelgava and Óbuda - Békásmegyer). Apart from Óbuda - Békásmegyer and Valencia, where population seems to be satisfied with health provision in their area, health services seem to be deficient or insufficiently used (less regular health exams, less access of information...) in the rest of pilot cities when this factor is mentioned.

Regarding climate conditions, all the pilot cities have to deal with very cold winters (especially Jelgava) except for Valencia, and some of them with hard summers as well (Edirne, Óbuda - Békásmegyer, Skopje, and Valencia). Especially significant are the extremes temperatures in both winter and summer of Skopje and Edirne (see

Figure 52). Valencia suffers also from the highest levels of mugginess.

Finally, rising energy prices, in both electricity and gas tariffs, are affecting almost all pilot cities from the last summer 2021.

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<sup>85</sup> These soviet-era multi-storey housing estates are commonly called "commie-blocks" or prefabricated housing estates.

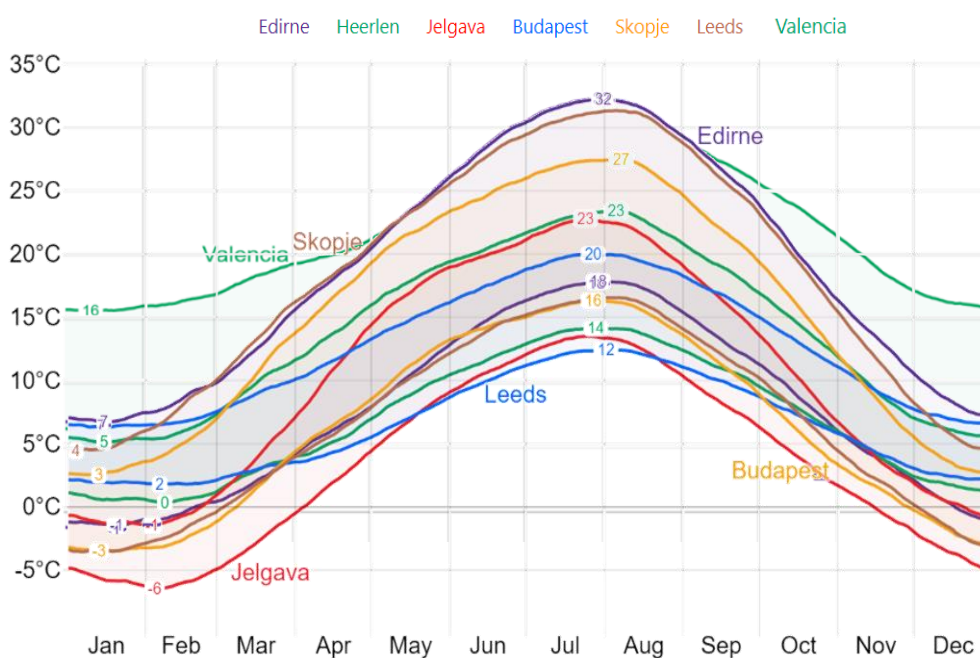


Figure 52. Comparison of average high and low temperatures in the seven pilot cities

Data source: [@weatherspark](#)

## OBJECTIVES AND ACTIONS

Although having the same overall goal of mitigating EP and improving health and wellbeing of the participants, each pilot programme plan to do it following its own specificities and resources, focusing on just a few sound actions or on the contrary, expanding its actions across a broad range of activities.

Regarding change towards healthy and more energy efficient lifestyles (**layer 1 of the socio ecological model**), all pilots will give individual information and advice to participants about domestic energy efficiency and empowerment resources. While many of them will realise energy audits as the starting point of the intervention, others such as Leeds will give this assistance on demand. Some pilots will also give support in managing potential debts in utility bills (Heerlen, Óbuda - Békásmegyer, Valencia).

Many pilots will also do group trainings/talks about energy efficiency, healthy habits, household management and bill optimisation, etc. (Heerlen, Jelgava, Óbuda - Békásmegyer, Valencia).

With respect to social and community networks (**layer 2 of the social ecological model**), Óbuda - Békásmegyer and Valencia pilot cities, taking advantage of the strong associative network of their target population, will especially focus on community building and citizen empowerment (trainings, regular meetings, collaborative art activities...). In the case of Valencia, these activities will be englobed into the so-

called Citizen School for the Right to Energy, emphasizing and diffusing the concept of Right of Energy amongst participants. These two pilots will also attempt to address mental health and attitude of participants through specialised trainings or meetings. These activities will be aimed at dealing with the extended feeling of loss of control and reducing anxiety and depression levels thanks to community support.

Other networking actions with key community stakeholders regards trainings to professionals (health staff, social workers, etc.) on how to identify people in Energy Poverty. This action will be performed by several pilots (Edirne, Heerlen , Óbuda - Békásmegyer, Valencia).

Concerning living conditions (**layer 3 of the social ecological model**), Heerlen, Jelgava and Valencia will deliver energy efficiency kits or “energy boxes” with low-cost devices to install at home for better living conditions. Óbuda - Békásmegyer also plans to replace inefficient house appliances based on needs and induce behavioural change through smart meter devices installed at home.

For some pilots (Edirne, Heerlen, Leeds), Wellbased programme will be accompanied by promoting structural house improvements such as thermal insulation or window replacement.

Regarding the broader level of intervention (**layer 4 of the social ecological model**), Heerlen, Jelgava, Skopje and Valencia plan to do a powerful communication awareness campaign on EP and education material for general public. On the other hand, most of the pilots will aim their actions towards policy change such as Edirne, Heerlen, Jelgava, Óbuda - Békásmegyer and Valencia.

Table summarises the different actions planned in the seven urban programmes.

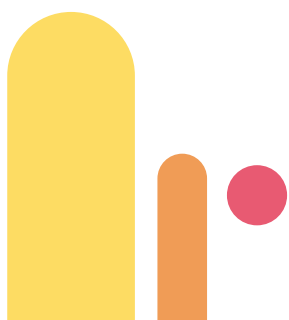
Table 29. Summary of actions planned in the seven WUPs

	WUP ACTIONS						
	EDIRNE	HEERL.	JELGAV.	LEEDS	ÓBUDA	SKOPJE	VALENC.
<b>Layer 1 Individual lifestyle factors</b>							
ENERGY AUDITS	x	x	x		x	x	x
GROUP TRAININGS AND TALKS		x	x		x		x
MENTAL HEALTH AND ATTITUDE CHANGING ACTIVITIES					x		x

DIGITALLY SUPPORTED BEHAVIOURAL CHANGE					x		
<b>Layer 2 Social and Community networks</b>							
COMMUNITY BUILDING ACTIVITIES					x		x
TRAININGS TO KEY PROFESSIONALS	x	x			x		x
<b>Layer 3 Living and working conditions</b>							
EFFICIENCY KITS/APPLIANCES REPLACEMENT		x	x		x		x
STRUCTURAL HOUSE IMPROVEMENTS	x	x		x			
<b>Layer 4 General socio-economic, cultural and environmental conditions</b>							
COMMUNICATION/EDUCATIONAL CAMPAIGN FOR GENERAL PUBLIC		x	x			x	x
ACTIONS FOR POLICY CHANGE	x	x	x		x		x

The urban programmes described in this deliverable, once deployed and analysed through the evaluation process, will enable to generate sound evidence about the impact of EP measures on health and wellbeing of citizens, in both physical and mental aspect, and consequently adequately mitigating EP. This data-based course of actions and scientific studies will guide the elaboration of policy recommendations in the next phase (WP5) to drive a realistic, efficient and multidimensional fight against EP.

## Annexes



## Annex 1 (Chapter 2 - Edirne, Turkey)

This Annex complements the section 2.4.Target Population of Chapter 2.

TARGET POPULATION OF YOUR WUP						
Population: socio demographic characteristics						
DEMOGRAPHIC INDICATORS <sup>86</sup>	Çavuşbey	Menzilahir	Umurbey	Yeniimaret	Yıldırım Beyazıt	Yıldırım Hacı Sarraf
Total Population (2019)	4363	2869	2456	3863	3737	2904
Men	2269	1413	1291	2512	1855	1432
Women	2094	1456	1165	1351	1882	1472
Annual growth rate of population (‰) -2020						
Edirne Merkez	-24.6					
Sex ratio (2020)	0.99 (men per woman)					
Population Density (2020)	2.14 per ha					
Ageing Index (pop.>65 per <15)	462	231	272	433	528	392
Population evolution (1991-2021):	The population of Edirne Merkez district increased by 45.5% in 2020 compared to 1990 and became 180,901 (1990 population 124,361).					
FOREIGN POPULATION INDICATORS			Edirne – Merkez District (2020)			
Foreign Population (%)			4866 (2.7%)			
Men (%)			2305 (2.6%)			

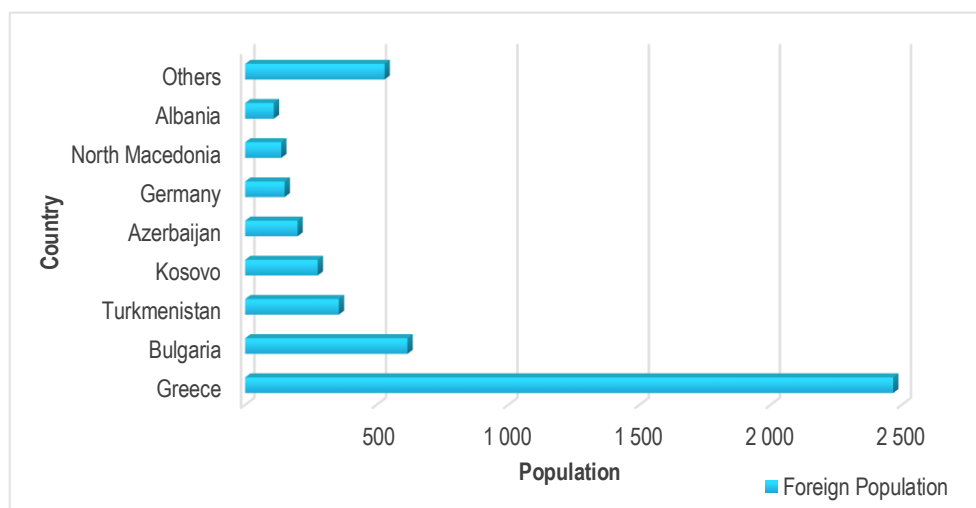
<sup>86</sup> Data Source: Statistics Office of the City of Edirne,



Women (%)

2561 (2.8%)

Distribution of foreign population per country of origin in Edirne Centre:



Source, TURKSTAT, 2020

### Layer 1: Individual Lifestyle factors

#### EDUCATIONAL LEVEL (AND GENDER)

(Among people above 18)

##### Doesn't read or write

Men

Women

##### Lower than Secondary Education Graduate

Men

Women

##### Equivalent to Secondary Education Graduate

Men

Women

##### High school level, vocational trainings and higher educational levels

Men

Edirne Merkez District

2,187

400

1,787

43,227

19,028

24,199

22,205

12,869

9,336

84,327

43,810

Women		40,517	
Layer 2: Social and Community networks			
Neighbourhood administrative units (mukhtars), neighbourhood committees, Edirne Roma People Education Volunteers Association, Thracian Young Roma People Association, Union of Roma People of Balkans, Edirne Association of Research, development and cooperation of Roma Culture, Edirne Roma Associations Federation. Linkages with other initiatives: Edirne municipality has included in its 2020-2024 Strategic Plans, a specific aim to develop sustainable livelihoods in Roma neighbourhoods, which includes an assortment of measures from social cohesion to home improvement provisions. The municipality has applied to the Dosta Prize in 2019 (prize instated by The European Alliance of Cities and Regions for Roma Inclusion).			
Layer 3: General socio-economic, cultural and environmental conditions			
CLIMATE CONDITIONS (Edirne) <sup>87</sup>			
	Average	Max	Min
Temperature (°C)	13.7°C	44.1°C	-19.5°C
Humidity (%)	70%	96.5%	30.3%
NATURAL ENVIRONMENT			
	Edirne		
Green Areas (n)	200		
Green Areas (m²)	1,350,000		
Green area per total area (%)	4.6%		
ENERGY PRICE IN TURKEY			

<sup>87</sup> <https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?m=EDIRNE>

Table 10: Energy prices in Turkey, 2020 (₺)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Electricity	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8
Natural gas	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
LPG	109.3	109.2	109.0	96.5	100.1	103.8	109.0	109.4	111.9	112.2	112.1	111.7
Coal	1075.6	1079.7	1082.7	1094.9	1099.4	1097.2	1091.9	1103.1	1113.7	1142.7	1184.5	1190.7
Wood	667.1	667.4	667.8	669.0	670.3	672.4	674.8	686.5	694.6	715.4	737.4	743.7

Source: TURKSTAT

Monthly electric average household invoice in Turkey: (per month)

Table 11: Electric average household invoice in Turkey (per month)<sup>88</sup>

Electrical equipment	Monthly Consumption of a Family of 4 (kWh)	Monthly Payment (₺) - tax included
Bulb (Non-Saving)	72.10	28.21
Fridge	70.70	27.66
TV	37.80	14.79
Cooker	20.10	7.87
Washing machine	14,50	5,67
Dishwasher	13.30	5.20
Iron	10.10	3.95
Computer	8.50	3.33
Vacuum cleaner	6.10	2.39
<b>TOTAL</b>	<b>253.20 kWh</b>	<b>99.08 ₺</b>

Wood 700-800 ₺/tones

Coal 1400-1500 ₺/tones

<sup>88</sup> <https://gazelektrik.com/faydali-bilgiler/elektrik-tuketimi>

## Annex 2 (Chapter 6 – Obuda-Békásmegyer district, Budapest, Hungary)

This Annex complements the section 2.4.Target Population of Chapter 6.

Note: Data significantly above or below the city average have been highlighted in green/red depending on what we have considered positive/negative implications for the population.

TARGET POPULATION OF YOUR WUP		
INDICATORS	Békásmegyer	3rd District
Total Population	29,090	134,105
Men	13,023	61,142
Women	16,067	72,963
Proportion of 0-14 year olds within the population (%)	13.65	13.1
Proportion of 15-59 year olds within the population (%)	61.6	61.4
Proportion of 60-X year olds within the population (%)	24.75	25.5
Proportion of those with up to primary education in the active age group (15-59 years) (%)	10.25	6.7
Proportion of those with higher education aged 25 and over (%)	19.55	35.5
Housing stock (pcs)	13,754	62,623
Proportion of low comfort dwellings (%)	1.15	2.4
Proportion of uncomfortable, semi-comfortable and emergency dwellings within inhabited dwellings (%)	1.15	2.1
Proportion of one-room dwellings within inhabited dwellings (%)	11.8	12.3
Proportion of those without an active income in the active age group (15-59 years)	32.15	32.1
Proportion of those with no more than primary education and no regular income within the working age population (%)	5.7	4.1
Proportion of employed people in the population aged 15-64 (%)	62.05	63.5
Proportion of households without employed household members (%)	33.35	34.0

Proportion of people employed in low-prestige employment groups (%)	25.55	17.9
Proportion of the economically inactive population within the resident population (%)	50.05	50.2
Unemployment rate (unemployment rate) (%)	11.3	10.0
Percentage of long-term unemployed (unemployed for at least 360 days) (%)	6.55	5.9
<b>Ownership structure</b>		
Individual	12,209	58,161
Local government	1,456	3,399
Other institution	89	1,063
<b>Title of the home user</b>		
Empty apartment	600	6,526
Owner or relative, beneficiary	6,908	49,042
Tenant or relative of tenant	962	6,090
Other	150	965
<b>Recipients of social benefits<sup>89</sup></b>		
Regular child protection discount	347	891
Housing allowance	301	807
Rent reduction allowance	87	189
Drug subsidy	210	688
Extraordinary settlement subsidy	472	1,243

<sup>89</sup> Source: Data of the Social Department of Óbuda-Békásmegyer Municipality, 2016.

## Annex 3 (Chapter 8 – Valencia, Spain)

This Annex complements the section 2.4.Target Population of Chapter 8.

**Table a1. Target Population – Socio demographic characteristics**

Note: Data significantly above or below the city average have been highlighted in green/red depending on what we have considered positive/negative implications for the population.

Population: Socio demographic characteristics				
1. DEMOGRAPHIC INDICATORS <sup>90</sup>	Poblats Marítims	Camins al Grau	Algirós	València
<b>Total Population</b>	<b>55.760</b>	<b>65.981</b>	<b>36.390</b>	<b>800.180</b>
Men	26.840	31.683	17.138	380.275
Women	28.920	34.298	19.252	419.905
<b>Vegetative growth (births minus deceases)</b>	<b>-229</b>	<b>-160</b>	<b>-117</b>	<b>-2256</b>
Men	-89	-70	-74	-1038
Women	-140	-90	-43	-1218
<b>Sex ratio (men per woman)</b>	<b>92,8</b>	<b>92,4</b>	<b>89,0</b>	<b>90,6</b>
<b>Population Density (population per ha)</b>	<b>57,0</b>	<b>278,8</b>	<b>123,0</b>	<b>57,8</b>
<b>Age Average</b>	<b>44,6</b>	<b>43,4</b>	<b>46,6</b>	<b>44,7</b>
<b>Ageing Index (pop.&gt;65 per &lt;15)</b>	<b>150,0</b>	<b>124,3</b>	<b>227,0</b>	<b>152,2</b>
<b>“Over-ageing” Index (pop.&gt;84 per &lt;64)</b>	<b>16,0</b>	<b>14,8</b>	<b>14,0</b>	<b>15,8</b>
<b>Demographic Dependency Index (active pop. per economically dependent pop.)</b>	<b>52,2</b>	<b>50,4</b>	<b>57,2</b>	<b>54,2</b>

<sup>90</sup> Statistics Office of the City of Valencia, 01.01.2021 (<https://www.valencia.es/es/cas/estadistica/inicio>)

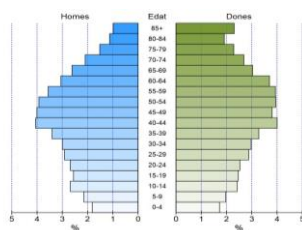
Structure Index of Active Population (older active pop. per younger active pop.)	137,0	139,4	118,1	135,3
Replacement Index of Active Population (pop.60-64 per pop.15-19)	131,1	110,7	171,9	130,0
Demographic progress Index (0-4 per 5-9 year-old)	86,0	76,9	87,3	85,8
Singleparent households (Percentage on total population)	899 (1,61%)	1090 (1,65%)	456 (1,25%)	12.768 (1,60%)
>65 year-old living alone (Percentage on total population)	3236 (5,80%)	3265 (4,95%)	2300 (6,32%)	45.352 (5,67%)
>80 year-old living alone (percentage on total population)	1344 (2,41%)	1461 (2,21%)	916 (2,52%)	19.291 (2,41%)

Population evolution (1991-2021):

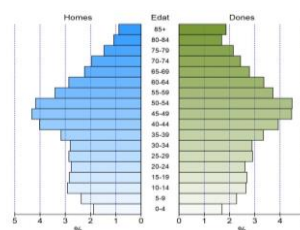


Age and sex structure (2021):

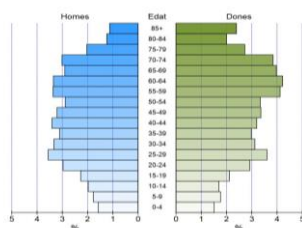
Poblat Marítims



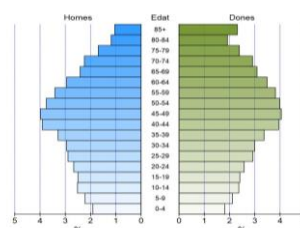
Camins al Grau

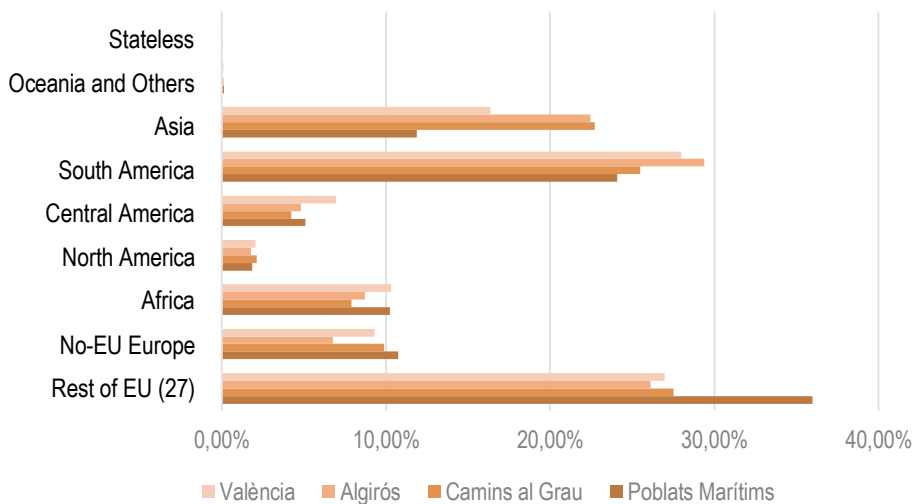


Algirós



València



2. FOREIGN POPULATION INDICATORS	Poblats Marítims	Camins al Grau	Algirós	València
<b>Foreign Population (%)</b>	<b>8.633</b>	<b>10.553</b>	<b>4.541</b>	<b>116.652</b>
Men (%)	4.356	5.251	2.239	58.469
Women (%)	4.277	5.302	2.302	58.183
<b>Foreing Population (%)</b>	<b>15,48</b>	<b>15,99</b>	<b>12,48</b>	<b>14,58</b>
<b>Foreing Population not EU (%)</b>	<b>9,91</b>	<b>11,59</b>	<b>9,22</b>	<b>10,65</b>
<b>Distribution of foreign population per country of origin:</b>				
 <p>0,00% 10,00% 20,00% 30,00% 40,00%</p> <p>València Algirós Camins al Grau Poblats Marítims</p>				
3. SOCIOECONOMIC INDICATORS <sup>91</sup>	Poblats Marítims	Camins al Grau	Algirós	València
<b>Average annual net income per person (€)</b>	<b>10.991</b>	<b>12.861</b>	<b>14.252</b>	<b>13.380</b>
<b>Average annual net income per household (€)</b>	<b>27.537</b>	<b>33.336</b>	<b>34.742</b>	<b>33.561</b>
<b>Inequality: Gini Index</b>	<b>35,0</b>	<b>35,5</b>	<b>34,0</b>	<b>34,3</b>
<b>Population under 5000 euros (%)</b>	<b>12,5</b>	<b>8,6</b>	<b>7,5</b>	<b>8,6</b>
<b>Population at risk of poverty based on income (%)</b>	<b>26,6</b>	<b>20,5</b>	<b>17,6</b>	<b>20,8</b>

<sup>91</sup> Servicio Valenciano de Empleo y Formación (LABORA), 2018



**Table a2. Target Population, Layer 1 – Individual Lifestyle factors**

Note: Data significantly above or below the city average have been highlighted in green/red depending on what we have considered positive/negative implications for the population.

Layer 1: Individual Lifestyle factors					
1. EDUCATIONAL LEVEL (AND GENDER)		Districts 11, 12 and 13		Valencia	
(Among people above 18)					
Doesn't read or write		0,19% (260 people)		0,19% (1317 people)	
Men		0,07% (41 men)		0,08% (249 men)	
Women		0,31% (219 women)		0,30% (1068 women)	
Lower than Secondary Education Graduate		19,8%		17,6%	
Men		18,3%		16,4%	
Women		21,2%		18,8%	
Equivalent to Secondary Education Graduate		30,62%		29,9%	
Men		32,2%		31,1%	
Women		29,2%		28,8%	
High school level, vocational trainings and higher educational levels		49,4%		52,3%	
Men		49,4%		52,4%	
Women		49,4%		52,2%	
3. HEALTH & SPORT <sup>92</sup>		Poblats Martitims	Camins al Grau	Algiros	Valencia
HEALTH CONDITIONS					
Survey: Regarding physical health, how have you felt last month, from 1 to 10? (1- Very tired; 10 – Much vitality)		5,8	6,4	5	5,8
Survey: Regarding mental health, how have you felt last month, from 1 to 10? (1- Very sad; 10 – Very happy). In particular:		7,1	6,4	6,0	6,7

<sup>92</sup> Statistics Office of the City of Valencia, [section Health, Food and Sport](#)

Very sad	2,3%	0,0%	8,9%	1,4%
Very happy	15,2%	0,0%	12,6%	9,2%
<b>Survey: Self-perception of health:<sup>93</sup></b>				
Very good/ Good	NA	NA	NA	71,4%
Medium				23,5%
Bad/very bad				5,1%
<b>Survey: In the last month, did you suffer of:</b>				
Bones pain, joint pain o muscular pain	43,6%	52,2%	37,5%	41,6%
Headache, sore throat, ears, eyes or teeth pain	28,3%	3,8%	10,8%	18,9%
Respiratory problems, chess pain	4,6%	3,0%	5,8%	6,2%
Tiredness, faints, dizziness	9,2%	7,4%	5,9%	8,3%
Heart problems, heart beating faster/stronger	2,3%	2,2%	1,6%	2,6%
Insomnia	21,3%	11,9%	12,5%	15,4%
<b>SPORT HABITS</b>				
<b>Survey: Do you consider sport as a very important healthy activity?</b>	<b>45,9 %</b>	<b>83,0%</b>	<b>83,4%</b>	<b>70,5%</b>
<b>Survey: People doing sport or any physical activity in their free time (walking, cycling...)</b>	<b>64,7%</b>	<b>69,4%</b>	<b>72,4%</b>	<b>65,7%</b>

<sup>93</sup>Statistics Office of the City of Valencia, section Health Survey (<https://www.valencia.es/cas/estadistica/anuario-estadistica?capitulo=5>)

**Table a3. Target Population, Layer 2 – Social and Community networks**

Note: Data significantly above or below the city average have been highlighted in green/red depending on what we have considered positive/negative implications for the population.

Layer 2: Social and Community networks <sup>94</sup>				
ASSOCIATIVE NETWORK	Poblats Maritims	Camins al Grau	Algíros	Valencia
<b>Total number of associations</b>	<b>352</b>	<b>285</b>	<b>240</b>	<b>4953</b>
Culture	105	63	47	1249
Sport	21	21	16	273
Social assistance	32	48	30	587
Professionals and economics	18	15	18	355
Party/recreations	38	15	15	357
Social Participation	24	13	18	314
Other	130	117	109	2002
<b>Municipal markets</b>	<b>2</b> (Cabanyal, Natzaret)	<b>1</b> (Grao)	<b>1</b> (Algíros)	<b>18</b>
<b>Popular University (<i>Universidad Popular</i>)</b>	<b>3</b> (Cabanyal, Natzaret, Palacete de Ayora)	<b>1</b> (Trafalgar)	<b>1</b> (Algíros)	<b>31</b>
<b>Health Councils (<i>Consells de Salut</i>)</b>	<b>1</b> (Serreria I)	<b>1</b> (Trafalgar)	<b>1</b> (Republica-Chile-S. Pau)	<b>11</b>

<sup>94</sup> Statistics Office of the City of Valencia, section Welfare and Social Participation (<https://www.valencia.es/cas/estadistica/anuario-estadistica?capitulo=16>), 1.10.2021

**Table a4. Target Population, Layer 3 – Living and working conditions**

Note: Data significantly above or below the city average have been highlighted in green/red depending on what we have considered positive/negative implications for the population.

### Layer 3: Living and working conditions

#### 1. MAIN ECONOMIC ACTIVITIES <sup>95</sup>



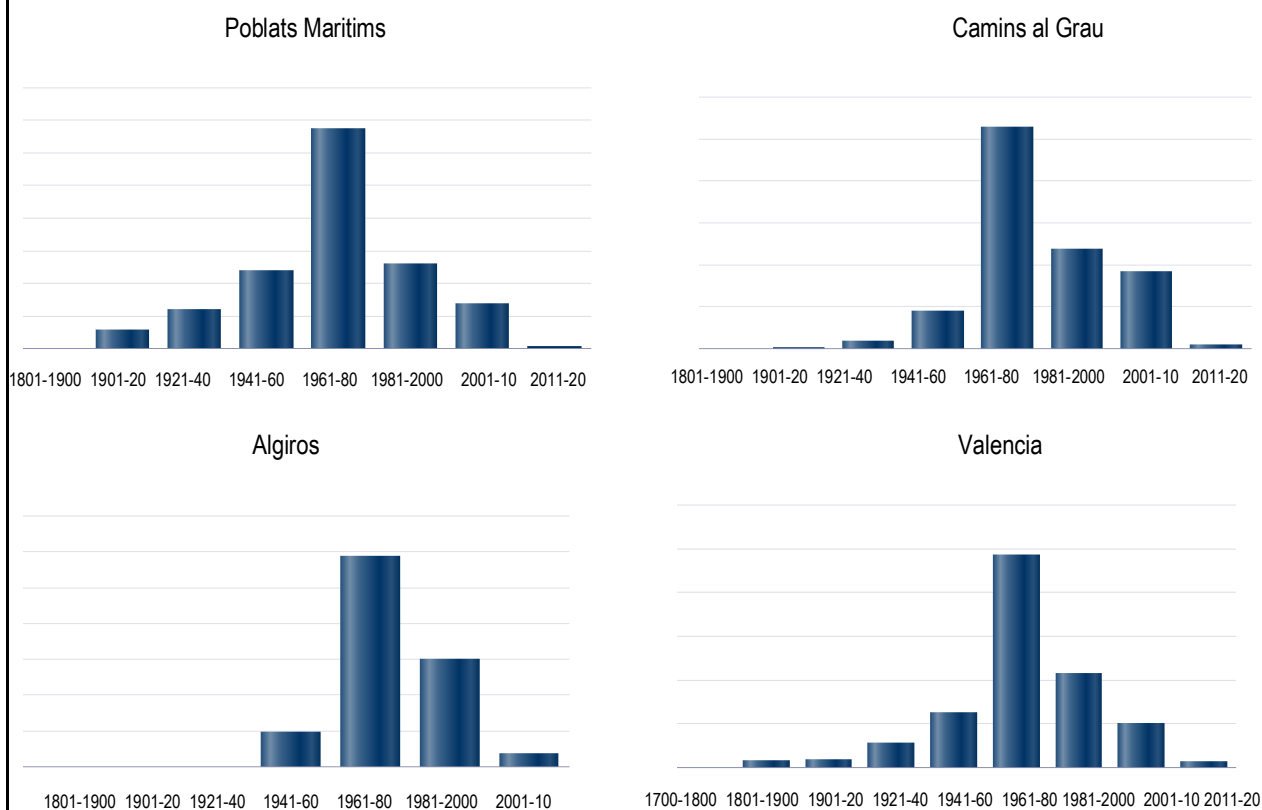
<sup>95</sup> Statistics Office of the City of Valencia, 01.01.2021 (<https://www.valencia.es/es/cas/estadistica/inicio>)

2. UNEMPLOYMENT (AND GENDER) <sup>96</sup>	Poblats Maritims	Camins al Grau	Algíros	Valencia
<b>Total unemployed (2011) (and percentage to total population)</b>	<b>11.175 (36,5%)</b>	<b>10.355 (29,6%)</b>	<b>5.195 (25,6%)</b>	<b>120.445 (28,8%)</b>
Men (and percentage to total population)	5.570 (35,3%)	5.030 (28,0%)	2.640 (25,7%)	58.800 (27,5%)
Women (and percentage to total population)	5.605 (37,7%)	5.320 (31,2%)	2.560 (25,6%)	61.635 (30,1%)
3. HOUSING CONDITIONS	Poblats Maritims	Camins al Grau	Algíros	Valencia
<b>Ownership status</b>				
Home owner - complete house payment	37,3%	32,9%	45,3%	46%
Home owner - pending payments (mortgage)	28,8%	35,7%	23,7%	20,9%
House acquired by heritage or donation	1,6%	2,2%	2,5%	3,3%
Tenant	30,8%	26,9	27,6%	28,1%
Public delivery	1,5%	1,5%	0,9%	1,3%
<b>Quantity paid by the majority for mortgage</b>	<b>€201-400</b>	<b>€401-600</b>	<b>€201-400</b>	<b>€401-600</b>
<b>House size</b>				
<50 m2	1,6	0,0	1,4	1,5
Between 51 and 100 m2	72,0	78,5	61,4	67,1
Between 101 and 150 m2	24,9	18,6	36,7	26,7
>151 m2	0,8	1,5	1,4	3,6
<b>Degree of Satisfaction of living in this home (1-10)</b>	<b>7,7</b>	<b>8,1</b>	<b>8,6</b>	<b>8,4</b>
<b>Share of people without heating system at home (%)</b>	<b>9,3</b>	<b>1,5</b>	<b>25,4</b>	<b>8,9</b>
<b>Kind of heating system (when available)</b>				
Electric	82,9	52,3	74,9	68,7
Natural Gas	11,1	39,3	34,9	22,8

<sup>96</sup> Statistics Office of the City of Valencia, 2011 (<https://www.valencia.es/es/cas/estadistica/inicio>). Unemployed population percentage has been calculated as number of unemployed related to total active population (above 15 years-old)

Bottled butane gas	6,0	9,2	1,1	11,0
Wood, pellets, coal, etc.	0	0	0	0,5
Gasoil	0	0	0	0,3
Solar thermal energy	0	0	0	0,1
<b>Share of people without hot water at home (%)</b>	<b>0,8</b>	<b>0,7</b>	<b>0,8</b>	<b>1,1</b>
<b>Kind of water heating system (when available) (%)</b>				
Natural Gas	39,2	23,2	80,2	48,2
Electric	51,5	75,3	12,4	38,2
Bottled butane gas	9,4	0,8	8,2	13,2
Gasoil	0	0	0	0,2
Solar thermal energy	0	0	0	0,2
Wood, pellets, coal, etc.	0	0,8	0	0,1
<b>Share of people with energy efficient appliances (%)</b>				
Low consumption bulbs	86,9	79,8	93,9	86,1
Sustainable consumption appliances	70	43,2	77,0	67,8
Insulating windows	52,8	93,1	53,0	54,6
Thermostat to regulate temperature	55,2	72,2	57,7	53,2
Solar pannels	0	0	0,8	1,3
<b>Share of people with leaks/dampness in walls, roofs or foundations (%)</b>	<b>22,5</b>	15,7	10,8	17,3
<b>Share of people with arrears on utility bills in the last 12 months (electricity, water, gas, internet, etc) (%)</b>	<b>1,8</b>	<b>12,8</b>	5,8	8,5
<b>Kind of arrear (in case it applies)</b>				
Electricity	50,0	59,7	0	43,3
Water	50,0	33,6	16,5	41,6
Mortgage or housing rent	50,0	33,8	50,4	39,5
Gas	0	33,5	0	11,2
Internet	0	6,4	0	8,0
Others	0	0	33,1	10,6

## House age:



## 4. PUBLIC HEALTHCARE PROVISION

**Public Health department:** Valencia-Clinic-Malva-rosa

### Public Health facilities:

- 1 hospital: Malva-rosa (PM)
- 1 specialties centre: El Grau (PM)
- 7 health centres: Salvador Pau (CG), Serreria II (AL), Rep Argentina (AL), Trafalgar (CG), Malva-rosa (PM), Serreria I (AL), Nazaret (PM),
- 2 Primary Attention centres: l'Alguer (PM) and Vicente Brull (PM)

**Degree of satisfaction:** In the City of Valencia, 68,3% of the population consider satisfactory the health public services used in the last 12 months, 25% very satisfactory, and 5.3% insatisfactory (2016).<sup>97</sup>

<sup>97</sup> Statistics Office of the City of Valencia, section Health Assistance (<https://www.valencia.es/cas/estadistica/anuario-estadistica?capitulo=5>)

5. MUNICIPAL PUBLIC CENTRES	Poblats Maritims	Camins al Grau	Algirós	Valencia
<b>Total centres for people at risk</b>	<b>38</b>	<b>24</b>	<b>23</b>	<b>411</b>
Addictions	2	0	0	18
Dependency	4	3	4	33
Disability	7	9	13	80
Mental illness	2	3	0	21
Family, children and adoptions	5	0	0	43
Youth	1	2	1	19
Aged people	13	5	4	130
Immigration	0	0	0	8
Women	1	0	1	11
Prisoners and ex-prisoners	1	0	0	3
Homeless	0	0	0	18
General population	2	2	0	27
<b>Social work municipal centres:</b>				
4 (Benimaclet, Malva-rosa, Natxaret, Trafalgar)				
<b>Municipal District Administrations:</b>				
1 (Junta Municipal de Maritim, in PM), out of 10 in the city of Valencia				



**Table a5. Target Population, Layer 4 – General socio-economic, cultural and environmental conditions**

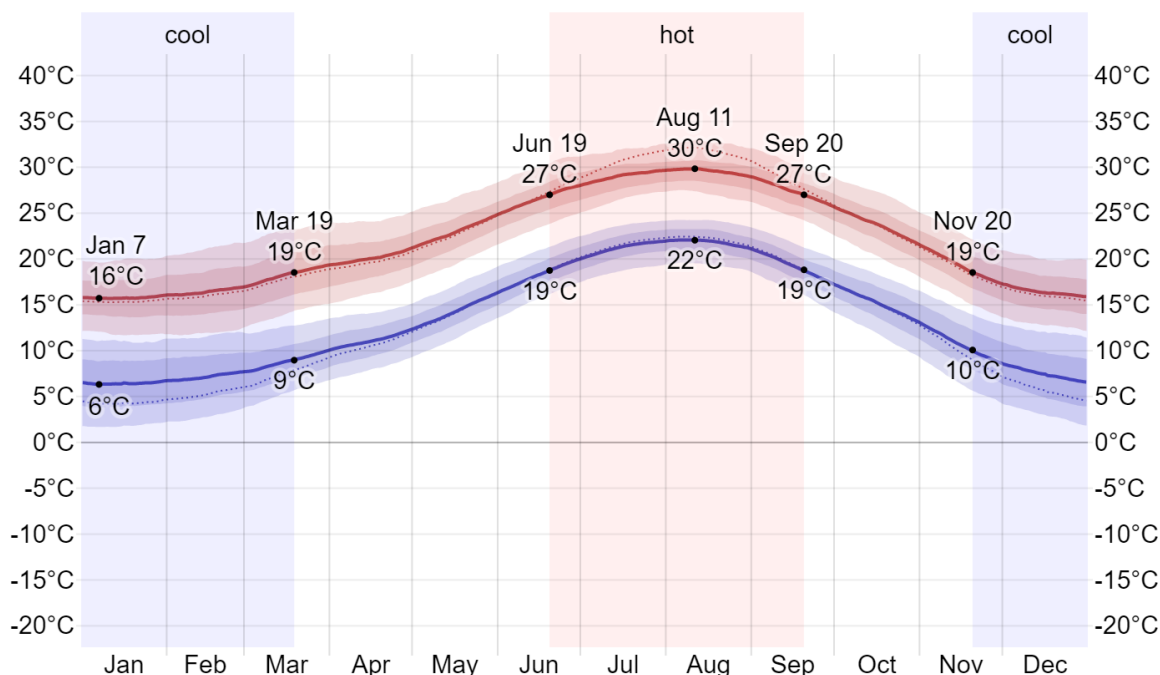
Note: Data significantly above or below the city average have been highlighted in green/red depending on what we have considered positive/negative implications for the population.

Layer 4: General socio-economic, cultural and environmental conditions	
1. CLIMATE CONDITIONS (City of Valencia) <sup>98</sup>	
Temperature in 2020	<b>Average: 18,9°C</b> <b>Maximum (9 Aug): 41,4°</b> <b>Minimum (11 Jan.): 1,8°C</b>
Relative Humidity in 2020 <sup>99</sup>	<b>Average: 75%</b> <b>Maximum (Nov): 83%</b> <b>Minimum (Dic): 63%</b>
Station: <i>Politechnical University of Valencia (AL)</i>	
Number of days with T>25°C in 2020	<b>141</b>
Number of days with T>30°C in 2020	<b>50</b>
Annual rainfall in 2020	335,8 l/m2
Rainy days per year in 2020	56
Rainy Days >30 l/m2 in 2020	3

<sup>98</sup> 2020 Statistical compilation of the City of Valencia, Statistics Office of the City of Valencia, 2020 ([https://www.valencia.es/estadistica/Recull/Recull2020\\_Valencia.pdf](https://www.valencia.es/estadistica/Recull/Recull2020_Valencia.pdf))

<sup>99</sup> Statistics Office of the City of Valencia, Physical Characteristics section (<https://www.valencia.es/cas/estadistica/anuario-estadistica?capitulo=1>)

Average monthly temperature (2013-2021)<sup>100</sup>



**The daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to 90th percentile bands. The thin dotted lines are the corresponding average perceived temperatures.**

The hot season lasts for 3.0 months, from June 19 to September 20, with an average daily high temperature above 27°C. The hottest month of the year in Valencia is August, with an average high of 30°C and low of 22°C.

The cool season lasts for 4.0 months, from November 20 to March 19, with an average daily high temperature below 19°C. The coldest month of the year in Valencia is January, with an average low of 6°C and high of 16°C.

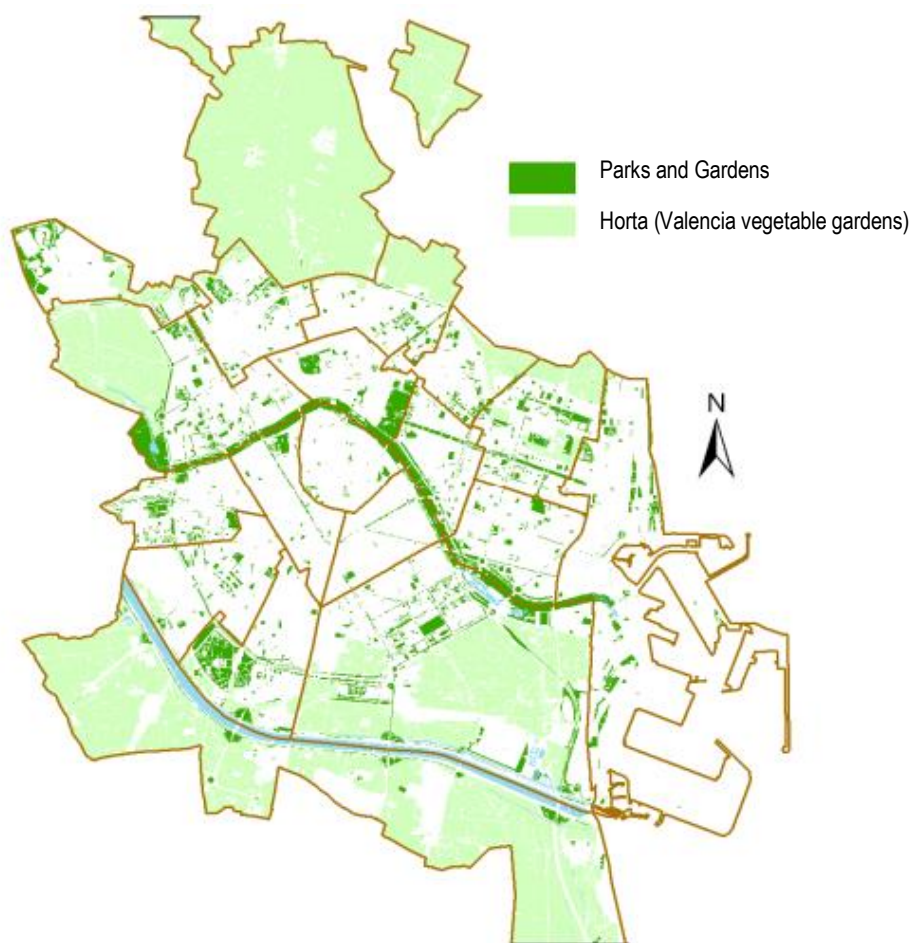
## 2. NATURAL ENVIRONMENT

(Excluding university campus, cemeteries and riversides)

	Poblats Marítims	Camins al Grau	Algirós	València
<b>Green Areas (nº)</b>	<b>61</b>	<b>46</b>	<b>47</b>	<b>721</b>
<b>Green Areas (m²)</b>	<b>340.661</b>	<b>210.380</b>	<b>210.374</b>	<b>3.739.903</b>
<b>Green areas/m2/inhab.</b>	<b>6,1</b>	<b>3,2</b>	<b>5,7</b>	<b>4,7</b>

<sup>100</sup> Climate and Average Weather Year Round in Valencia, 2013-2021 average, by [©WeatherSpark.com](https://weatherspark.com/y/42614/Average-Weather-in-Valencia-Spain-Year-Round#Figures-Temperature)  
(<https://weatherspark.com/y/42614/Average-Weather-in-Valencia-Spain-Year-Round#Figures-Temperature>)

### Green Areas in the City of Valencia<sup>101</sup>



### 3. AIR POLLUTION AND ACCOUSTIC LEVEL<sup>102</sup> (2019)

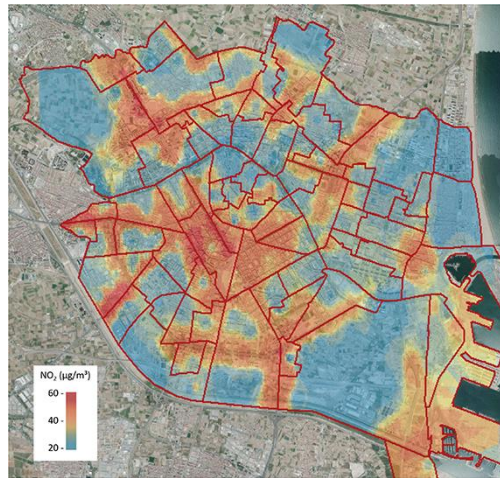
(Station: Pista de Silla)

Annual average level of SO <sub>2</sub> (µg/m <sup>3</sup> )	4,9
Annual average level of NO <sub>2</sub> (µg/m <sup>3</sup> )	28,5
Annual average level of O <sub>3</sub> (µg/m <sup>3</sup> )	49,0
Annual average level of CO <sub>2</sub> (µg/m <sup>3</sup> )	0,19
Accoustic level (dBA)	64,6

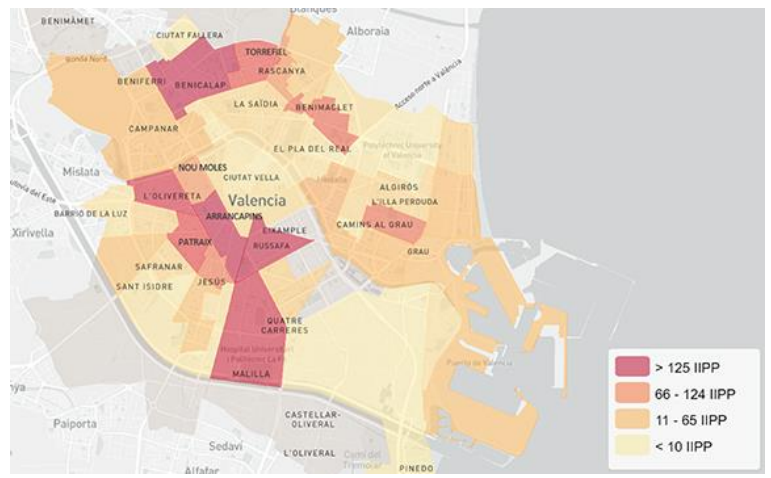
<sup>101</sup> 2020 Statistical compilation of the City of Valencia, (https://www.valencia.es/estadistica/Recull/Recull2020\_Valencia.pdf)

<sup>102</sup> 2020 Statistical compilation of the City of Valencia, (https://www.valencia.es/estadistica/Recull/Recull2020\_Valencia.pdf)

### Air quality in the City of Valencia based on mobile NO<sub>2</sub> dosimetry sensors (2019)<sup>103</sup>



NO<sub>2</sub> pollutant concentration



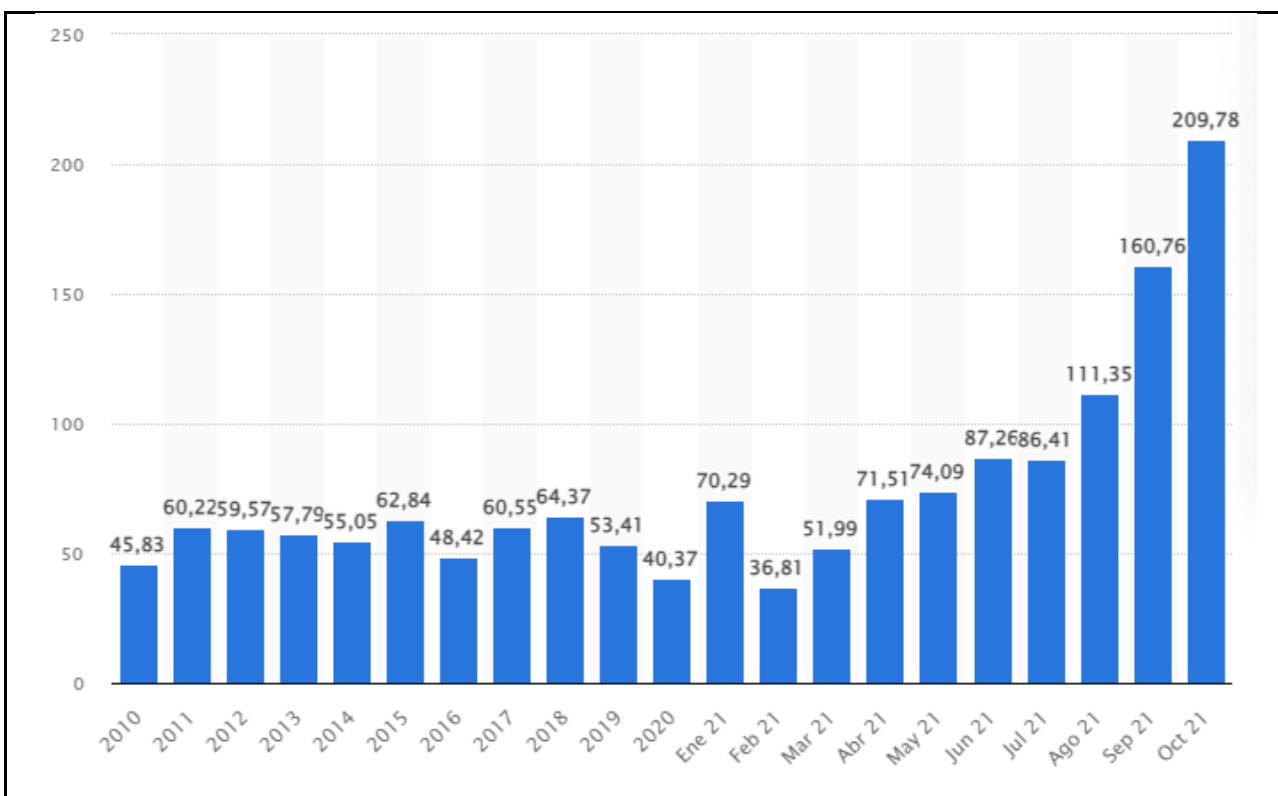
Impact Pollutant on Population (IIPP) index by neighbourhood (Higher IIPP values mean more people exposed to worse air quality levels)

MOBILITY	Poblats Marítims	Camins al Grau	Algirós	València
<b>Number of bike stations and anchorages<sup>104</sup></b>				
Stations	26	21	21	277
Anchorage	462	428	535	5 502
Anchorage per 1 000 inhab.	8,3	6,5	14,6	6,9
<b>ENERGY PRICE IN SPAIN<sup>105</sup></b>				
Energy price in Spain, 2010-Oct.2021 (€/MWh):				

<sup>103</sup> Edgar Lorenzo-Sáez et al 2021 Environ. Res. Lett. 16 054072 ([Assessment of an air quality surveillance network through passive pollution measurement with mobile sensors - IOPscience](#))

<sup>104</sup> Statistics Office of the City of Valencia, Transport section ([Cap03.xlsx \(live.com\)](#))

<sup>105</sup> Website of NGO Organización de Consumidores y Usuarios, OCU (Consumers and users' organisation), 2021 ([Precio de la electricidad | OCU](#))



**Monthly electric average household invoice in Spain (PVPC, Voluntary Price for the Small Consumer):**

Month	Invoice amount (€)
November 2021	95,94
October 2021	100,7
September 2021	87,40
August 2021	78,30
July 2021	72,20
June 2021	68,81
May 2021	70,55
April 2021	70,73
March 2021	62,25
February 2021	55,22
January 2021	69,88
December 2020	60,96
November 2020	60,33
October 2020	57,23
September 2020	58,97
August 2020	56,57

**Table a6. Vulnerability indexes of the censal sections 13.1 and 11.21, corresponding to Illa Perduda (Algiros) and el Cabanyal-el Canyameler (Poblats Maritims), respectively**

VULNERABILITY INDEXES AND RANKING IN VALENCIA CITY		
<i>(lower indexes mean higher vulnerability)</i>		
Neighborhood name	I'lla Perduda	El Cabanyal-el Canyameler
District	Algiros	Poblats Maritims
Censal section	13.1	11.21
<b>1. GENERAL VULNERABILITY INDEXES</b>		
Global Index	2.29	2.43
Ranking	572/590	538/590
Housing Index	1.67	1
Ranking	532/590	589/590
Equipment Index	3.02	2.52
Ranking	305/590	528/590
Demographic Index	2.29	2.86
Ranking	536/590	314/590
Socioeconomic Index	1.56	1.92
Ranking	542/590	514/590
<b>2. SOCIODEMOGRAPHIC INFORMATION</b>		
Dependent Population	65.43	51.84
Ranking	498/590	205/590
Foreign Pop., not EU	4.86	5.17
Ranking	124/590	141/590
People >64, alone	6.61	7.34
Ranking	401/590	482/590

People >80	8.16	7.99
Ranking	449/590	435/590
Ppoulation density	39 429.67	22 689.81
Ranking	412/590	191/590
SOCIOECONOMIC INFORMATION		
Average Income	12 173	7 877
Ranking	233/590	548/590
Risk of poverty	14.9	47.9
Ranking	136/590	584/590
HOUSING CONDITIONS		
Residential dwellings in poor or very poor conditions (% over total residential dwellings) <sup>106</sup>	17,79% (vulnerability threshold: 17,5%)	18,01% (vulnerability threshold 17,5%)
HEALTH, EDUCATION AND OTHER PUBLIC RESOURCES EQUIPMENT		
Health equipment Index	3.67	2.33
Ranking	53/590	480/590
People per Hospital	2005.25	2859.32
Ranking	264/590	392/590
People per Specialized health centre	1264.07	1286.53
Ranking	236/590	243/590
People per Health centres	126.64	576.05
Ranking	19/590	428/590
Education equipment index	3	1.67
Ranking	269/590	533/590
People per Primary school centres	174.58	331.73
Ranking	291/590	524/590

<sup>106</sup> National Vulnerable Neighbourhoods Catalogue, 2011, National Observatory of the Urban Vulnerability (Spanish Ministry of Transport, Mobility and Urban Agenda) ([bbvv\\_2011\\_10\\_comunitat\\_valenciana.pdf \(mitma.gob.es\)](#)). Data referred to the two analysed census sections and their surroundings.

People per Secondary school Centres	175.08	331.73
Ranking	268/590	514/590
People per post-secondary school Centres	350.44	628.26
Ranking	269/590	534/590
Population at risk equipment Index	2.33	2.33
Ranking	441/590	441/590
People per old people centres	836.31	589.62
Ranking	577/590	524/590
People per Social work centres	1346.64	932.66
Ranking	419/590	313/590
People per Youth centres	177.14	925.3
Ranking	64/590	519/590





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