LIFE ON THE PERIPHERY

STUDY ON EXPOSURE TO AND IMPACT OF ENVIRONMENTAL RISKS ON THE HEALTH AND LIVING CONDITIONS OF ROMA -

residents of poor, informal settlements in municipalities Shuto Orizari, Kumanovo, Prilep, Vinica, Delchevo and Pehchevo

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LIFE ON THE PERIPHERY - Study on exposure to and impact of environmental risks on the health and living conditions of Roma – residents of poor, informal settlements in municipalities Shuto Orizari, Kumanovo, Prilep, Vinica, Delchevo and Pehchevo

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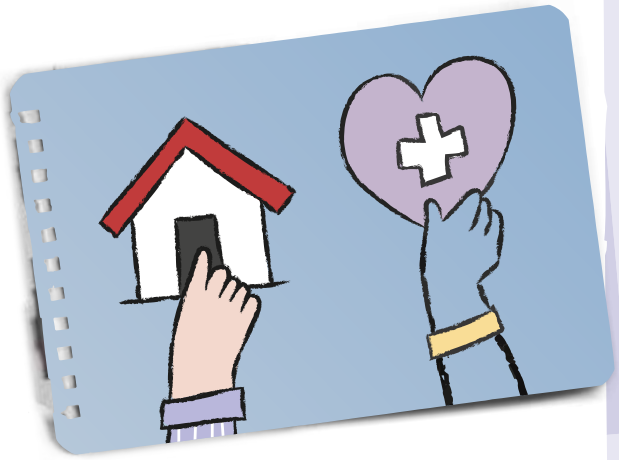

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Implementation of this integrated, cross-sectoral research represented a major endeavour necessitating serious coordination, cooperation and joint action on the part of many actors, and is the result of efforts contributed by high number of participants and experts.

The Association for Emancipation, Solidarity and Equality of Women (ESE) would like to acknowledge all who have participated in this research.

In particular, we would like to highlight selfless engagement by 4 non-governmental organizations that conducted the field survey among municipal administrations and Roma households:

- Association for Roma Community Development and Promotion **ROMANO CHACHIPE** from Skopje
- Association for Legal Education and Transparency **STATION L.E.T.** from Prilep
- **Humanitarian Association "Majka"** from Kumanovo
- **NGO KHAM** from Delchevo.

At the same time, we extend our gratitude to all individuals and households that welcomed surveyors in their homes. This research would not have been possible without their willingness to take the time and patiently respond to all questions raised.

It is our hope that research data will offer comprehensive evidence and will be used to guide public policies, but also decisions and activities, which is also the ultimate purpose - **to contribute towards improved health and wellbeing of Roma living in poor, informal settlements across North Macedonia.**

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SUMMARY

This document provides a comprehensive analysis of determined state-of-affairs and challenges encountered by the cross-sectoral research "Exposure to and impact of environmental risks on the health and living conditions of Roma", implemented in the period 1 January – 31 December 2022 in 13 poor, informal Roma settlements located in five cities and one village in North Macedonia. Settlements were selected on the basis of previous research conducted by the Association for Emancipation, Solidarity and Equality of Women on the status of Roma people on these locations and available information on the health status of local Roma populations.

The research gathered a multitude of qualitative and quantitative data based on surveys conducted among:

→ municipal administration employees in places where Roma settlements covered by this research are located: Shuto Orizari, Kumanovo, Prilep, Vinica, Delchevo and Pehchevo;

→ 2,171 members of Roma households from these settlements.

Information and data gathered are related to:

→ **general characteristics of Roma settlements** (type of townships where the Roma settlement is located, settlement name, location and legal status - existence of urban/spatial plans for the location);

→ **general characteristics of Roma households covered by the survey** (type of households, duration of residence in the settlement and health status of household members);

→ **specific environmental risks that affect immediate living conditions in Roma settlements** (vicinity of landfills, abandoned industrial facilities or areas susceptible to flooding, air pollution, debris or other environmental problems on the location, such as: smoke, dust, odour, polluted water, etc.); and

→ **specific environmental risks caused by housing and working conditions** (construction quality of housing units, lack of basic communal services and other health risks).

Findings presented in this document can serve as starting point for creation, implementation and monitoring of future policies and measures aimed to address environmental depravation and promote environmental justice, as well as bridge the gap between Roma and the general population in areas/municipalities where the survey was conducted.

I. INTRODUCTION

I.1. CHARACTER AND PURPOSE OF THIS DOCUMENT

The general goal of this document is to identify specific types of environmental risks that affect Roma living in poor, informal settlements in five cities and one village across North Macedonia, but also to determine possible causes of poor health among Roma communities and their shorter life expectancy compared to the general population.

Roma are the biggest ethnic minority in Europe. Around 6 from 10-12 million Roma living in Europe are citizens or residents of the European Union. In spite of anti-discrimination rules in EU member-states, many Roma still fall victim to prejudice and social exclusion.

According to the 2021 population census in North Macedonia, the total number of Roma in the country accounts for 46,433 citizens, i.e. 2.52% of the resident population. Among them, 45,242 Roma (97.4%) live in so-called urban municipalities (municipal seat is located in city). [1] Vast portion of Roma lives in the City of Skopje, i.e. separate local self-government unit (18,498) and municipalities Prilep (3,966), Kumanovo (2,795), Bitola (2,890), Shtip (2,301), Gostivar (2,273), Kichevo (2,003), Kochani (1,892) and Debar (1,140). Majority of them live in poor, informal neighbourhoods, mainly on the periphery of big cities.

The issue of Roma status and social inclusion is referenced in many international and national legal acts. Some of these acts establish general principles and standards on national minority protection that also incorporate the rights of Roma as members of non-majority communities. Others are more directly focused on the status of Roma people and propose or introduce specific measures aimed to improve education, employment, health, housing and culture.

Rapid Socio-Economic Assessment of Targets/Measures from the Republic of North Macedonia's Enhanced Nationally Determined Contributions, [2] developed by the Ministry of Environment and Spatial Planning in 2021, identifies 14 vulnerable groups that are facing challenges in adjusting to potentially negative environmental conditions which are result of climate change, those being: **Roma**, unemployed, persons with disabilities, senior citizens, children at risk, women, drug users, homeless, youth, single parents, chronically ill, cancer patients, and victims of human trafficking and prostitution.

The new **Roma Inclusion Strategy of the Republic of North Macedonia 2022 - 2030** anticipates promotion and development of their socio-economic status, legal status, cultural and language rights, by ensuring adequate and equal access to goods and services and equitable participation of Roma communities in building an inclusive society based on eliminating all forms of discrimination, anti-cyganism and poverty. Monitoring and reporting on strategy implementation will use the portfolio of indicators developed by the European Agency for Fundamental Rights. [3]

[1] Established under the Law on Territorial Organization of Local Self-Governments in the Republic of Macedonia ("Official Gazette of RM" no. 55/04, 12/05, 98/08, 106/08, 149/14).

[2] Rapid Socio-Economic Assessment of Targets/Measures from the Republic of North Macedonia's Enhanced Nationally Determined Contributions. Available at: <https://api.klimatskipromeni.mk/data/rest/file/download/31291c4ce15f8179330b6ad4f4776a2c7056a82815266346cc1f349a1d6988e3.pdf>.

Roma Inclusion Strategy 2022 - 2030

(...) Despite implementation of both national strategies, reports developed by the European Commission, civil society organizations and the affected community still indicate the need for accelerated implementation of policies and activities aimed to improve the status of Roma in the society. The COVID-19 pandemic imposed new challenges in terms of social inclusion and has brought to the surface systemic deficiencies in terms of Roma housing, employment and health, and reversal of positive changes achieved in the area of education. Part of the Roma community that lives at the margins of the society is heavily exposed to negative health and socio-economic effects that are manifested by limited access to clean water, lack of basic sanitary infrastructure, as well as lack of capacity and other skills among children to participate in mainstream education.

(...) In general, the ***health status of Roma is worse*** *compared to other ethnic communities in North Macedonia, while the reasons thereof are most often related to their socio-economic position and are differently reflected on certain groups within the Roma community. An additional reason for the poor health status is identified in* ***substandard housing and living conditions****. In winter seasons, there is enormous air pollution in Roma neighbourhoods due to the method of space heating. According to the research of the Regional Roma Report, 87% of Roma and 81% of non-Roma use solid fuels for heating (coal, wood).*

(...) Roma, as a group marked by own specificities and living in ***underdeveloped or poorly developed settlements****, are facing numerous challenges in their daily lives. These challenges lead to negative perceptions about Roma on the part of non-Roma communities, and result with discrimination in various spheres of life and low quality of living. These facts further contribute to lower school attendance rates, lower employment, shorter life expectancy, higher mortality, higher migration, and greater participation in the informal economy.*

(...) In the last 25 years, the municipalities have failed to find adequate solutions (funds) to urbanize and integrate Roma settlements in their general urban plans, which has further aggravated problems related to housing legalization and have left many Roma housing units outside this process.

Although it has been proved that Roma have poorer health and shorter life expectancy compared to the general population, there are no studies/analyses that determine the type of environmental risks to which Roma are exposed which could be qualified as causes for their current health status.

This document provides comprehensive analysis of conditions and challenges observed as part of the survey research "Exposure to and impact of environmental risks on the health and living conditions of Roma", in support of the process for social inclusion of Roma as one of the most vulnerable population groups in the country and their participation in development processes within their communities.

This document is first of its kind and could help civil society organizations and other stakeholders in planning, implementing and monitoring policies, programs and projects aimed to improve health and living conditions for residents in poor, informal Roma settlements and bridge the gap between Roma and the general population.

[3] Communication COM/2020/620 [final] from the Commission to the European Parliament and the Council, A Union of Equality: EU Roma Strategic Framework for Equality, Inclusion and Participation 2021–2030, ANNEX 2. Available at: <https://eur-lex.europa.eu/resource.html?uri=cellar:9a007e7e-08ad-11eb-a511-01aa75ed71a1.0001.02/DOC_1&format=PD>.

I.2. GEOGRAPHICAL AND SECTORAL COVERAGE OF THE SURVEY

GEOGRAPHICAL COVERAGE

Geographic scope of sustainable development, healthy environment and climate change policies concerns the entire territory of the Republic of North Macedonia, in line with the national Nomenclature of Territorial Units for Statistics **(NTES)** [4] at **Level 1** (**NTES 1**) and **Level 2** (**NTES 2**).

SECTORAL COVERAGE

The **focus of this research is put on Roma settlements in 6 townships** that are classified as **Level 5** NTES Units and hold the status of "**city**" or "**village**" according to the Law on Territorial Organization of Local Self-Government Units in the Republic of Macedonia [5], as follows:

- → **City of Skopje,** i.e. parts of the Municipality of Shuto Orizari - settlements Hangarni Baraki and Nov Zivot [6]
- → **City of Kumanovo** - settlements Pero Chicho - Baraki, Bavchi, Sredorek, and Ciganski Sokak, Bajram Shabani, near the sports field, etc.
- → **City of Prilep** - settlements Dabnica, Deboj, Meksiko, and Novo Selo
- → **City of Vinica** - certain parts
- → **City of Delchevo** - certain parts
- → **Village Crnik** (Municipality of Pehchevo) - certain village areas.

I.3. DEFINITIONS

Terms used in this report have the following meaning:

- → **International treaty** is any treaty signed in written form by the Republic of North Macedonia and one or more states or international organizations, which regulates the rights and obligations of the state in compliance with the Constitution of the Republic of North Macedonia and the international law, irrespective of the fact whether it is contained in one or more mutually related treaties; [7]

[4] The Nomenclature of Territorial Units for Statistics (**NTES**) provides a unique and unified division of territorial units established by law for the purpose of providing statistics and data at territorial level, which will be used for planning and implementing development policies for particular area. NTES is based on territorial organization of the local self-government in the Republic of North Macedonia and the EU nomenclature (Nomenclature of Territorial Units for Statistics - NUTS). It determines the following levels of territorial units for statistics: **NTES 1**: entre territory of the state; **NTES 2**: entire territory of the state; **NTES 3**: 8 functional territorial units for statistics established for the purpose of developmental planning and implementation of the equitable regional development policy, as follows: Vardar, East, Southwest, Pelagonija, Polog, Northeast and Skopje Regions; **NTES 4**: 84 municipalities and **NTES 5**: 1,776 townships (cities and villages). Available at: <https://www.stat.gov.mk/KlasifikaciiNomenklaturi/NTESSIVes2019.pdf>.

[5] Law on Territorial Organization of the Local Self-Government in the Republic of North Macedonia, "Official Gazette of RM" no. 55/04, 12/05, 98/08, 106/08 and 149/14.

[6] According to the Law on Territorial Organization of the Local Self-Government, the area of the Municipality of Shuto Orizari is comprised of the part that belongs to the City of Skopje as township and village Gorno Orizari as township. This research covers only the area of the Municipality of Shuto Orizari that belongs to the City of Skopje.

→ **Household** is any family or other community of persons who have expressed willingness to live together and jointly spend their income to meet basic sustenance needs (housing, food, etc.), irrespective of the fact whether all members reside in the place where the household lives or some of them temporarily reside in another place, i.e. foreign state, for the purpose of work, schooling or other reasons. Household is also a single person who lives alone and does not have own household in another place; [8]

→ **Housing** units are dwellings and other premises or facilities not intended for living, but used for residence at the time when the survey was conducted; [9]

→ **Roma settlements** are a combination of two definitions: definition of settlement as one or group of housing units and definition of Roma settlement as township with portion of its residents being Roma (according to census data and/or estimates of local community representatives/Roma); [10]

→ **Poor**, informal settlements are residential areas where residents do not own the land and/or housing units where they live, do not have or are disconnected from basic services and formal urban infrastructure, housing units are not build in compliance with enforceable regulations on urban planning and construction and are often located within hazardous geographical and environmental zones; [11]

→ **Resilience** is the ability of a system and its parts to anticipate, absorb, adjust and recover from consequences of disastrous events in timely and efficient manner, including by preservation, renewal or improvement of essential structures and functions;

→ **Monitoring** is generally defined as ongoing function aimed to provide indications to management and other key participants whether implementation of a strategy, program or project is compliant with previously defined documents or implementation adjustments are needed;

→ **Evaluation** is periodic assessment of relevance, performance, efficiency and effect of a strategy, program or project against defined targets, especially after certain interventions are made and activities are implemented;

→ **Objective** is the desired outcome from implementation of a strategy, program or project and is usually expressed in non-technical, qualitative terms, for example: reducing poverty, etc.;

→ **Target** is quantified level (value) of an indicator that should be attained within defined timeframe of a strategy, program or project;

→ **Indicator** is particular reporting on state-of-affairs, i.e. variable used to measure progress made towards attainment of goals/objectives. Indicators can be quantitative or qualitative.

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7 Article 2, paragraph (1) of the Law on Signing, Ratifying and Enforcing International Treaties ("Official Gazette of RM" no. 5/98).

8 Term from the Census of the Population, Households and Dwellings (2021). Available at: <https://www.stat.gov.mk/OblastOpsto.aspx?id=31>.

9 Term from the Census of the Population, Households and Dwellings (2021).

10 Term from the Regional Methodology for Mapping Roma Housing in the Western Balkans (2020).

11 United Nations Statistics Division. SDG 11.1.1. Metadata. Available at: <https://unstats.un.org/sdgs/metadata/files/Metadata-11-01-01.pdf>.

I.4. RESEARCH METHODOLOGY

This report is produced on the basis of desk research and field survey, and uses specific qualitative and quantitative methods.

In the **first phase**, the dominant research method implied qualitative analysis (desk research) of key multilateral and international documents (global and European) and national strategic and planning documents, as well as the national legislation, all of which are relevant for creation and implementation of Roma health and environmental protection policies by 2030. This research mapped goals and priorities defined in planning documents and legal provisions related to sustainable development planning, but did not include a more in-depth analysis of their implementation track record. Empirical findings from this analysis were used to develop the policy document titled **"Analysis of environmental protection policies as baseline for mapping environmental risks that affect residents of Roma settlements in North Macedonia".**

Findings and concluding observations from the policy analysis were also used to develop instruments needed for the field survey, as follows: [12]

→ *survey questionnaire for members of Roma households to determine specific environmental risks that affect their health and wellbeing and are caused by housing and working conditions.* Questions were grouped under four headings: (1) present health status of household members; (2) health risks caused by construction quality of housing units; (3) health risks caused by lack of basic communal services; and (4) other health risks caused by living and working conditions.

→ *survey questionnaire for municipal administration employees to determine specific environmental risks that affect the immediate environment in Roma settlements.* Questions were grouped under three headings:

(1) Roma settlements on the municipality's territory;

(2) hazardous environmental conditions that affect health and wellbeing of residents in Roma settlements; and

(3) participation of Roma in local policy planning to eliminate risks that affect health and wellbeing of residents in Roma settlements.

→ *guidelines for focus group discussions on exposure to and impact of environmental risks on the health and living environment of Roma.* Questions for discussion were grouped under two headings: (1) what are the specific environmental risks that affect immediate living conditions in poor, informal Roma settlements in the municipality, i.e. environmental discrimination (pollution of ambiance air, urban heat islands, dangerous chemicals, noise, vector-borne diseases, poor sanitary conditions, waste or occupational risks)? and (2) what are the specific environmental risks that affect Roma health and wellbeing, caused by housing and working conditions (construction quality of housing units, lack of access to basic communal services and infrastructure, and other risks that affect the health of residents in Roma settlements)?

[12] Development of survey questionnaires took into consideration: (1) guidelines from the Regional Methodology on Mapping Roma Housing (2020), standardized methodology for collecting basic data on housing conditions and evaluating the effect of measures to address shortcoming in Roma environments in the Western Balkans; (2) questionnaires developed as part of the Multiple Indicator Cluster Survey (MICS) for North Macedonia and for Roma settlements in North Macedonia 2018-2019, conducted by the State Statistical Office as part of the Global MICS Programme, published in May 2020.

In the **second phase**, the main research method included development of qualitative and quantitative analyses (field survey) based on structured interviews and focus group discussions, as follows:

→ **field research using the survey questionnaire for Roma households.** Interviews were conducted on 13 locations (Roma settlements) in Kumanovo, Prilep, Vinica, Delchevo, Skopje (Municipality of Shuto Orizari) and village Crnik in the Municipality of Pehchevo. Interviews with **household members** in Roma settlements resulted in collection of data on specific environmental risks caused by living and working conditions.

→ **field research using the survey questionnaire for municipal administration employees.** Interviews were conducted on 6 locations, i.e. municipal administration buildings in Prilep, Shuto Orizari, Kumanovo, Vinica, Delchevo, and Pehchevo. Data were secured to determine specific environmental risks that impact the immediate environment in Roma settlements, for each municipality separately.

→ **field research based on the guidelines for focus group discussions.** In line with the geographical and sectoral scope of this study, a total of 4 focus groups were organized: focus group for the CITY OF SKOPJE (parts of the Municipality of SHUTO ORIZARI), focus group for the Municipality of KUMANOVO, focus group for the Municipality of PRILEP and focus group for municipalities VINICA, DELCHEVO and PEHCHEVO. Focus group meetings were organized at private locations in 4 cities: Skopje, Kumanovo, Prilep and Vinica. Discussions with total of 56 participants (municipal administration employees, representatives from regional public health centres, local NGOs profiled in environmental protection and protection of Roma rights, and field research surveyors) provided the basis for development of the report from focus group discussions.

I.5. STRUCTURE OF THE RESEARCH STUDY

PART I:
INTRODUCTION

Provides a brief overview of the character and purpose of this document, geographical and sectoral coverage of the research, as well as definitions of terms and notions used in the document, and the research methodology.

PART II:
ENVIRONMENTAL PROTECTION POLICIES AS BASIS FOR MAPPING ENVIRONMENTAL RISKS THAT AFFECT ROMA HEALTH AND WELLBEING

Designed to elaborate:

→ **environmental risks that affect human health** and living conditions;

→ **the right to safe, clean and sustainable environment** as universal human right;

→ **the right to adequate housing** as universal human right;

→ **the global sustainable development framework and climate change impact** by 2030;

→ **the role of sustainable urban development** in guaranteeing the right to healthy environment and delivering environmental justice;

→ **the strategic framework to address environmental risks** that affect Roma health and living conditions by 2030.

PART III.

SURVEY RESULTS

PER SETTLEMENT elaborates results from the field survey in each settlement (city /village) separately. Research findings are grouped under three headings, as follows:

1. BASIC DATA ABOUT ROMA SETTLEMENTS, including data on the legal status and location safety of settlements in relation to environmental health risks.

2. GENERAL CHARACTERISTICS OF ROMA HOUSEHOLDS COVERED BY THE SURVEY, including data on the type of households in Roma settlements, duration of residence in Roma settlements, and present health status of household members.

3. SPECIFIC ENVIRONMENTAL RISKS CAUSED BY HOUSING AND WORKING CONDITIONS, including data on health risks that are results of the construction quality of housing units, health risks that are result of the lack of access to basic communal services, and other health risks that are result of housing and working conditions.

II. ENVIRONMENTAL PROTECTION POLICIES AS BASIS FOR MAPPING ENVIRONMENTAL RISKS THAT AFFECT HUMAN HEALTH AND WELLBEING

II.1. RIGHT TO SAFE, CLEAN, HEALTHY AND SUSTAINABLE ENVIRONMENT AS UNIVERSAL HUMAN RIGHT

Resolution of the United Nations General Assembly Resolution from 28 July 2022, [13] recognizes the right to safe, clean, healthy and sustainable environment as universal human right. It requires states to adopt policies that ensure clean, healthy and sustainable environment for all. Moreover, this resolution underlines the connection to other human rights. Safe, clean, healthy and sustainable environment is an integral part of the full exercise of the entire body of human rights, including the right to life, adequate housing, health, clean air, clean water and adequate sanitary conditions, healthy and sustainable food, safe climate and healthy biodiversity and ecosystems. Without healthy environment, human aspirations cannot be achieved, and people cannot live at level proportionate to minimum standards of human dignity.

Constitution of the Republic of North Macedonia provides guarantees for exercise of the right to healthy environment, especially by means of legal provisions that:

- ➔ establish proper urban and rural planning and promotion of environment and nature protection as fundamental values of the constitutional order in the country (Art.8, par. (1), line 10);
- ➔ guarantee the right to healthy environment of all people, i.e. every person is obliged to promote and protect the environment and nature, while the Republic provides conditions for exercise of the right of citizens to healthy environment (Art.43).

In the capacity of all-encompassing legislation, the **Law on Environment** [14] stipulates:

- ➔ rights and obligations of the Republic of North Macedonia, the municipalities, the City of Skopje and the municipalities in the City of Skopje, as well as rights and obligations of legal and natural persons, for provision of conditions to protect and promote the environment, in order to ensure exercise of the right of citizens to healthy environment;
- ➔ basic principles of environmental protection;
- ➔ legal bases for protection and promotion of environment quality and conditions;
- ➔ obligation to integrate the policy on environmental protection and promotion in all developmental, strategic, planning and programming documents adopted by state administration bodies and local governments.

[13] Resolution A/RES/76/300 of the UN General Assembly from 28 July on the human right to clean, healthy, and sustainable environment. Available at: <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/442/77/PDF/N2244277.pdf?OpenElement>.

[14] "Official Gazette of RM" no. 53/05, 81/05, 79/06, 101/06, 109/06, 24/07, 159/08, 83/09, 161/09, 1/10, 48/10, 124/10, 51/11, 123/12, 93/13, 187/13, 42/14, 44/15, 129/15, 192/15, 39/16, 28/18, 65/18, 99/18, and "Official Gazette of RNM' no.176/21, 216/21, 89/22, 99/22, 171/22.

An entire series of **laws and bylaws** regulate issues such as:

- ➔ provision of conditions that are conductive to environment protection and promotion, in order to ensure the right of citizens to safe, clean, healthy and sustainable environment as universal human right;
- ➔ protection of environmental media (soil, water, air) and separate environmental areas (nature, waste, noise, vibrations, ionizing and nonionizing radiation, climate, odour, and all other elements that are inseparable part of the environment);
- ➔ arrangement and humanization of space and promotion of the environment and nature, as well as social, economic and environmental sustainability of human settlements through a continuous process of developing, adopting, implementing and monitoring plans that are part of the system of urban and spatial planning;
- ➔ ensure control and supervision over performance by competent state administration bodies and local governments;
- ➔ civic engagement and civil society participation in defining and monitoring development policies at national, regional and local level.

According to the constitutional and legal framework in North Macedonia, **national and local authorities** (as holders of public duties) have an affirmative obligation to ensure that, when planning and implementing development policies, **all citizens, including Roma** (as holders of human rights) enjoy the required quality of the environment in which they are born, grow up, live and age, **that guarantees their health and wellbeing.**

II.2. ENVIRONMENTAL RISKS ON HUMAN HEALTH AND LIVING CONDITIONS

Health and wellbeing of citizens is determined in terms of their everyday life, including economic circumstances, social dynamic and quality of their housing and working environment.

According to the World Health Organization (WHO): *"Many diseases and unfavourable health conditions are related to **social determinants of health**,* [16] *i.e. with a broad spectrum of factors that exist in the society and shape the conditions in which people are born, grow up, work, live and age, as well as with a broader set of rules and systems that shape the conditions of daily life. These include economic policies and systems, development agendas, societal norms, social policies and political systems. These conditions have a major impact on health inequalities - unjust differences and differences in health status noted within and between countries. Social health determinants are separate from medical care or individual choice for the person's style of living."*

Some of these determinants are *income or socio-economic position, education, work status, safety at work, and social support and inclusion.* Other determinants are closely related to *quality of environmental mediums* (water, air, and soil) and *individual areas that are inseparable part of the environment* (nature, waste, noise, vibrations, ionizing and non-ionizing radiation, climate, odour, and all other elements (***so-called environmental risks***).

WHO Global Strategy on Health, Environment and Climate Change (2020) [17] defines **environmental health risks** as "p*hysical, chemical, biological and work-related factors external to a person, and all related behaviours (especially the part of the environment that can be reasonable modified)".*

[15] The system of spatial and urban planning is comprised of the Physical Plan of RNM and spatial plans for its implementation, as well as urban plans and acts for their implementation.

[16] Available at: <https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1>.

[17] This strategy aims to provide a vision and way forward on how governments across the world and their health systems need to respond to environmental health risks and challenges by 2030 and to ensure safe, enabling and equitable environments for health by transforming our way of living working, producing, consuming and governing. Available at: <https://apps.who.int/iris/handle/10665/331959>.

Compendium of WHO and Other UN Guidance on Health and Environment [18] enlists **basic environmental risks that affect people's health and living conditions**, including:

→ **change of climate and ecosystems,** as the biggest threat to health and environment faced by the humanity today;

→ **pollution of air, water and soil;**

→ **ultraviolet (UV) and ionizing radiation;**

→ **electromagnetic fields (EMFs);**

→ **occupational risks;**

→ **construction environment** (housing, workplace, water supply, use of land and roads);

→ **behaviour related to environmental factors** (for example, hand-washing hygiene and physical activities encouraged by improved urban design).

These environmental risks cause almost one quarter of the burden with *many communicable and noncommunicable diseases and injuries with the general population* in the world, including ischemic heart disease, stroke, respiratory infections, diarrheal diseases, chronic obstructive lung diseases, road traffic injuries, unintentional poisoning, etc.).[19]

II.3. ENVIRONMENTAL RISKS AND EXERCISE OF UNIVERSAL HUMAN RIGHTS TO PROPER HOUSING AND CLEAN ENVIRONMENT

Environmental pollution and climate change have negative effect, direct and indirect, on a series of internationally guaranteed human rights, including **the rights to adequate housing and clean environment that are of critical importance for human health and wellbeing.**

Housing is the focal point of many human needs; not does it only provide quality, safe and acceptable accommodation, but it also provides access to so-called communal services [20] and access to basic health services (healthcare, emergency services). Housing environment most probably has the biggest impact on human health, behaviour and satisfaction, as houses are the place where people spend most of their lives, raise their children and develop social habits. All these aspects of housing are considered as **guarantees of good health and good quality of life.** People living in **adequate housing** have better health, higher chance to improve their human capital and to utilize opportunities available to them in urbanized settlements.

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[18] Compendium of WHO and Other UN Guidance on Health and Environment (2021) aims to facilitate access to guidance from the World Health Organization (WHO) and other United Nations (UN) agencies, funds, and programmes for creating healthier environments for healthier populations. Table 1.1. (page 6) enlists indicative linkages between environmental risk factors and current diseases or injuries. The Compendium is intended for those who wish to create policies on healthier environment, minimise preventable deaths and disability, and improve human health. Available at: <https://www.who.int/publications/i/item/WHO-HEP-ECH-EHD-22.01>.

[19] According to WHO, between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year from malnutrition, malaria, diarrhoea, and heath stress. At the same time, WHO warns that unless urgent action is taken, the climate change will push more than 100 million people into poverty by 2030.

[20] According to the Law on Local Self-Government (Art.22), communal services are: drinking water supply; waste water discharge; public lighting; atmospheric water drains; public hygiene maintenance; collection of communal solid and technological waste; regulation and organization of local public transport; construction, reconstruction and protection of local roads, streets and other infrastructure facilities; traffic regulation; construction and maintenance of road traffic signs; construction and maintenance of public parking space; construction and maintenance of green markets; chimney cleaning; maintenance and use of parks, greenery, park forests and recreational areas.

Adequate housing is recognized as part of the right to adequate standard of living stipulated in Article 25 of the 1948 **Universal Declaration of Human Rights** [21] and Article 11(1) of the 1966 **International Covenant on Economic, Social and Cultural Rights.** [22] Since then, other international treaties on human rights also recognize the right to adequate housing or some of its elements such as: protection of home and privacy. **The right to adequate housing** is relevant for all UN member states because all of them have ratified at least one international treaty that covers adequate housing and have committed to protect the right to adequate housing by undersigning international declarations, action plans or other international documents.

According to the **Law on Housing in North Macedonia**, [23] housing can be minimum and adequate. ***Minimum housing*** involves fulfilment of minimum spatial requirements, housing unit equipment for connection to basic communal infrastructure such as: electricity, water and sewage, and road connection to the settlement, i.e. town, as well as legal security in terms of tenure or residence rights. In addition to elements of minimum housing, ***adequate housing*** also includes adequate privacy and space, physical accessibility, security, construction stability and durability, lighting, heating and ventilation, basic infrastructure such as: water supply, sewage and waste collection, quality environment and health-related factors, as well as accessibility of work and other basic services.

Environmental risks, and especially change of climate and ecosystems (extreme rains, floods, draughts, landslides, storms, heat and cold waves) have **particularly serious impact** on places where everyday activities of people take place (***housing and workplace***). Clean air, both indoor and outdoor, stable climate, adequate water, sanitary conditions and health (WASH), safe use of chemicals, radiation protection, sound waste management, sound and safe workplace, cities with health support and developed environment, sustainable diets and preserved biodiversity and ecosystems are of **crucial importance to ensure good health.**

Negative effects from environment pollution and climate change **are mainly felt by people and communities that are already disadvantaged due to many factors.** The Intergovernmental Panel on Climate Change in 2014 reiterated that "*people who are socially, economically, politically, institutionally or otherwise marginalized are especially vulnerable to climate change, as well as to some climate change adjustment and mitigation responses".*

According to findings presented in the Special Report of the Intergovernmental Panel on Climate Change (IPCC) titled ***Global Warming by 1.5°C***, [24] "the level of risk depends on human vulnerability and effectiveness of adaptation by (...) **informal settlements and infrastructure sectors (such as energy, water and transport)".**

Poor, informal settlements are among the most extreme forms of deprivation and exclusion and remain to be *critical factor for persisting poverty and challenge to sustainable and inclusive urban planning*. At the same time, other forms of urban poverty, such as **informal settlements and buildings constructed without construction permits or contrary to construction permits** is a long-standing phenomenon in our country. Moreover, not all people who live in inadequate housing units are located in poor quarters, but they still live in seriously substandard conditions within the urban context where they are located.

[21] Universal Declaration of Human Rights. Available at: <https://www.ohchr.org/sites/default/files/UDHR/Documents/UDHR_Translations/eng.pdf>.

[22] International Covenant on Economic, Social and Cultural Rights. Available at: <https://www.ohchr.org/sites/default/files/cescr.pdf>.

[23] Article 8 of the Law on Housing ("Official Gazette of RM" no. 99/09, 57/10, 36/11, 54/11, 13/12, 55/13, 163/13, 42/14, 199/14, 146/15, 31/1, and 64/18; and "Official Gazette of RNM" no. 302/20 and 150/22).

[24] Intergovernmental Panel on Climate Change (IPCC) is UN body for scientific assessments on the current state of knowledge about climate change. IPCC Special Report: Global Warming of 1.5°C (2022). Available at: <https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15_Full_Report_HR.pdf>.

According to the **Study on Sustainable Urban Development of Substandard Settlements in the Republic of Macedonia**, [25] "*resolution of these challenges has been made more difficult due to* ***lack of reliable, disaggregated and available data at the level of informal settlements*** *that could be helpful in* ***diagnosing environmental risks****, lack of access to basic services and vulnerability of populations living there. Socio-economic indicators are rarely expressed in spatial terms, which further complicates identification of non-urbanized, poor settlements and their specific characteristics. Standard satellite method of analysis are unable to accurately characterize informal settlements or poor quarters and lack of services, while the household census usually does not target such settlements*". This prevents development of relevant policies that would provide *transition to greener and more comprehensive development* and fight against climate change that "does not leave anyone behind", as well as attainment of the **global target 11.1: by 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.**

Under conditions of long-standing political and economic stagnation, accompanied by mass immigration from the country, **housing was not treated as one of main factors for healthy life and wellbeing, and especially important element of sustainable development in North Macedonia**. The last national strategic framework on housing was defined under the Housing Strategy 2007-2012.

North Macedonia **does not have a law that regulates social housing**. According to Habitat Macedonia, [26] "*social housing is a concept which in Macedonia is understood in different ways and bears risks of erroneous interpretations. It is often put in the context of, i.e. refers to the provider of this special type of housing, and in the context of the target group for which housing is provided. In general, a consistent model of social housing has not been developed after the concept of socially owned housing fund was abandoned*".

The municipalities have still not established registries of residential buildings, of residential building management entities and of housing inspectors, all of which are obligations related to monitoring the housing situation at local level and stipulated in the Law on Housing adopted in 2009.

[25] Study on Sustainable Urban Development of Substandard Settlements in the Republic of Macedonia (2017). Available at: <https://domuvanje.org.mk/portfolio/stufija-odrzliv-urban-razvoj/>.

[26] Non-governmental organization committed to secure simple, decent and affordable housing solutions for those living in poverty, regardless of their ethnicity, gender and religion - Habitat Macedonia's Strategy Plan 2019 - 2021. Available at: <http://habitat.org.mk/doc/povikid1/strategiski_plan-2019-2021.pdf>.

II.4. GLOBAL FRAMEWORK ON SUSTAINABLE DEVELOPMENT AND ADDRESSING CLIMATE CHANGE RISKS AND IMPACT BY 2030

CBy signing to UN international treaties, i.e. the new global framework on sustainable development: Transforming Our World - 2030 Agenda for Sustainable Development, [27] Paris Agreement, [28] and Sendai Framework, [29] **when defining developmental policies at national and local level** (plans and programs) related to sustainable development and addressing climate change impact and adjustment thereto, North Macedonia has committed to:

→ *put* **people in the focus of the developmental process** and implement the central, transformative promise from the 2030 Agenda **("leave no one behind")** as unequivocal commitment to *eradicate poverty in all its forms, end discrimination and exclusion, and reduce inequalities* (2030 Agenda);

→ *develop indicators* at national level, as deemed appropriate, taking into account all national circumstances (2030 Agenda);

→ *underline* **the role of local authorities** as the level of government closest to citizens and *key driver of transition towards greener and more comprehensive development and fight against climate change* that **"leaves no one behind"** (2030 Agenda);

→ *encourage* monitoring and reporting on local contribution to attainment of national SGDs from the 2030 Agenda through **so-called localization of sustainable development goals** (2030 Agenda);

→ *recognize* the importance of engagement at all levels of government and different actors in addressing climate change (2015 Paris Agreement);

→ *respect, promote and take into consideration* relevant obligations for protection of human rights, especially the right to health, the rights of local communities, migrants, children, persons with disabilities and people in vulnerable position, as well as the right to development, gender equality, women empowerment and generational equity and **implement the so-called just transition** (2015 Paris Agreement);

→ *strengthen* the natural disaster risk management system in a manner that allows reduced disaster risks in all sectors when developing resilience policies, plans, programs and budgets **at all levels of government** (Sendai Framework);

→ *focus* on adopting measures that address disaster risks (including **environmental risks**) to prevent creation of new risks, reduce existing risks and **increase resilience** (2030 Sendai Framework). [30]

[27] Resolution of the UN General Assembly from 25 September 2015 (A/RES/70/1). Available at: <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N15/291/89/PDF/N1529189.pdf?OpenElement>.

[28] Paris Agreement is a joint commitment of UN member states to reduce climate change risks and impact, and to adjust to negative effects thereof. Macedonia has ratified the Paris Agreement in 2017 ("Official Gazette of RM" no. 161/2017). Available at: <https://unfccc.int/sites/default/files/english_paris_agreement.pdf>.

[29] Sendai Framework for Disaster Risk Reduction 2015-2030 determines specific activities for protection of sustainable development benefits against disaster risks. It is in compliance with the Paris Agreement, Addis Ababa Agenda on Financing Development, new Urban Agenda and implementation of the Sustainable Development Goals. The framework recognizes the key role of local actors and their contribution to attainment of SDGs. Available at: <https://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf>.

[30] Sendai Framework applies to all types of risks, i.e. risks of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards, as well as related environmental, technological and biological hazards and risks.

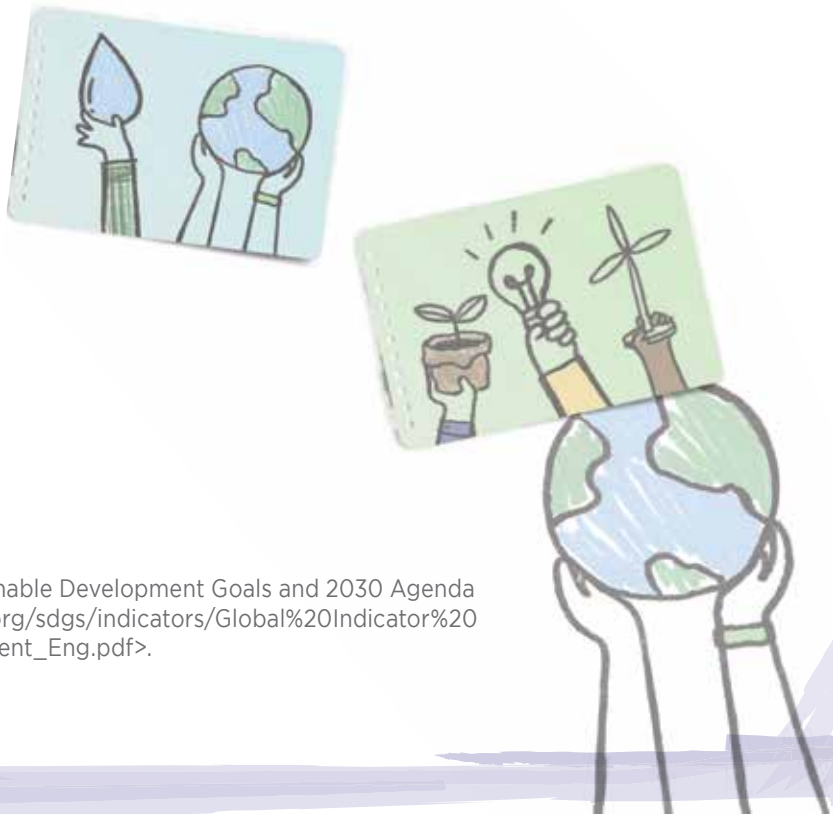
2030 Agenda is a **global plan of action** for people, planet and prosperity, calling all countries to *take action and accelerate transition towards greener and more comprehensive development by 2030*. It will be implemented through a **set of 17 sustainable development goals (SDGs)** that are related to several aspects of human development, including better health, eradicated poverty, education, reduced inequalities, environment quality, and urgent need to address climate change. These goals are mutually integrated and inseparable, and they balance the three dimensions of sustainable development: economic, social and environmental.

Attainment of the **2030 Agenda will be monitored against 169 targets and 231 indicators.** [31] SDG indicators should be segregated, where relevant, per income level, gender, age, race, ethnicity, migration status, disability and geographical location or other characteristics, in compliance with the general principles of official statistics.

2030 Agenda concerns all levels of governments, all stakeholders and all people in an **inclusive and collective effort for sustainable development.** *The role of different levels of government in implementation of SDGs depends on the political and institutional framework in each country. All levels of government should have capacity to set own priorities in line with their competences and* ***implement them through local plans and sector policies.***

Local authorities are best positioned to **design and implement multisectoral approaches to effective attainment of sustainable development on the territories they administer.** Implementation of global and national SDGs should correspond to local needs and priorities, be coherent and complement national strategies. Traditional approaches and tools based on sector policies are not suitable for this purpose as sustainable development challenges are complex and systemic in nature. Representatives of national and local authorities, private sector, civil society and local communities **must be involved in the processes for sustainable development and reduction of climate change risks and effects by 2030**.

This means that, more than ever before, attainment of global SDGs depends on the ability of national and local authorities and institutions to **promote inclusive and sustainable territorial development** through *integrated national and local strategies and programs and integrated developmental projects adjusted to local needs and conditions that leave no one behind.*



[31] Global Indicator Framework for Sustainable Development Goals and 2030 Agenda Targets. Available at: <https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202022%20refinement_Eng.pdf>.

Work Program of UN Agencies and Bodies in the Republic of North Macedonia for Implementation of SDGs by 2030

Sustainable Development Cooperation Framework (SDCF) 2021 - 2025

(...) The country needs to address several **challenges** to accelerate progress towards SGDs.

(...) In the past, **absence of formulated national strategy for country development** and inability to build political consensus around strategic issues has disrupted the development trajectory. Most policies confine themselves to a certain short political period of four years or less, thus seriously jeopardising any continuity of reforms.

(...) **The national mechanism for monitoring progress under SDGs *needs to be enhanced* and set of national SDG indicators should be adopted.**

(...) There is lack of adequate acceptance of SDG agenda as national platform for development together with the EU accession process. Given the abovementioned, monitoring SGD progress is difficult.

(...) Accelerated progress under SDGs can be hindered by challenges in evidence-based policy making. **Evidence-based policy making, inter alia, requires good and detailed data, enhanced analytical abilities and monitoring and assessment skills as well as implementation of commitments related to previous impact assessment of policies on particular population groups. Lack of reliable demographic data desegregated by gender, ethnicity, disability, migration, etc., hinders creation of policies targeting vulnerable population groups, which may be exempted from measures created or put under greater risks of exclusion from mainstream processes or policies.**

II.5. ROLE OF SUSTAINABLE DEVELOPMENT IN ENSURING THE RIGHT TO HEALTHY ENVIRONMENT AND DELIVERING ENVIRONMENTAL JUSTICE

By adopting SDG.11 from the Sustainable Development Agenda, the international community has committed "to make cities and human settlements inclusive, safe, resilient and sustainable by 2030", thereby **acknowledging urban development as main precondition for sustainable development and human health and wellbeing.**
Sustainable urban development is further **incentivized with**:

→ **United Nations New Urban Agenda**, adopted in 2016, [32] as collective global vision and political commitment to **promotion and implementation of sustainable and inclusive urban development** and historical opportunity to use the key role of cities and human settlements as drivers of sustainable development in the increasingly urbanized world;

→ **New Leipzig Charter: Transformative Power of Cities for the Common Good**, [33] adopted in 2020, as framework document on sustainable transformation of cities and human settlements based on the 2030 Agenda, especially SDG.11, the UN New Urban

[32] Resolution of the UN General Assembly from 23 December 2016 (A/RES/71/256*). Available at: <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N16/466/55/PDF/N1646655.pdf?OpenElement>.

[33] Non-binding document adopted at the informal ministerial meeting on urban development, held on 30 November 2020 and signed by urban development ministers from EU member states, plus partner countries, European institutions and organizations. Available at: <https://ec.europa.eu/regional_policy/sources/docgener/brochure/new_leipzig_charter/new_leipzig_charter_en.pdf>.

Agenda, the Paris Agreement, and the European Union's Green Deal. It establishes the **key principles of good urban governance**:

- **urban policy for the common good** - public authorities should **act in the interest of people's health and wellbeing**, providing services and infrastructure that are inclusive, safe and accessible to all, including *the weakest and most vulnerable groups in society;*
- **multi-level governance** - every level of government, i.e. local, regional, national, European and global, has a specific responsibility for the future of our cities and human settlements based on the *principles of subsidiarity and proportionality.* Vertical and horizontal cooperation among different levels of government and stakeholders, both bottom-up and top-down, is key for good urban governance;
- **integrated approach** - all areas of urban policy have to be coordinated in spatial, sectoral and temporal manner;
- **place-based approach (location)** - the so-called "**localization**" includes people, resources and all other aspects within a specific local context. This approach requires: *long-term focus; significant engagement of stakeholders; capacity-building for affected communities; and use of quality data and information for decision making and monitoring and measuring their effect.*

Sustainable and inclusive urban development has a central role in prevention of 21st century diseases as urban policies define the air we breathe, the quality of premises we use, the water we drink, the manner in which we move about, our access to food, and the treatment of diseases through adequate access to healthcare for all. These policies can create or aggravate risks to population health or stimulate healthier environment, way of living, and healthy and resilient cities and societies.

Setting **health and wellbeing in the centre of the process for spatial and urban planning** can encourage good standard of living, build resilient communities and enable involvement of vulnerable groups to reduce inequalities in urban areas.

At the same time, such action must **deliver environmental justice**, which implies that spatial interventions should not and must not **hinder the right of people to safe, clean and sustainable environment**. This principle of fairness must be primarily implemented by planners and decision makers.

Preventive action by creating a healthier environment for healthier population should be an important component of **policies aimed at attainment of more just and sustainable cities and human settlements.** In that respect, policy makers at local level, in cooperation with healthcare and other national and regional institutions, should be focused on **preventing environmental risks and dealing with their effect** on health through programs, measures and activities that ensure:

→ access to clean drinking water, adequate sanitation, waste collection and management services, and fight against the existing spatial (territorial) segregation as the cause of environmental discrimination in the area of housing and basic services;

→ access to green areas for life with recreational value, healthy and safe work environment for those working in disadvantaged environmental conditions;

→ study and monitoring of *hygiene and health-environmental conditions* in terms of air protection, safety of food and items of general use, drinking water, surface waters, waste waters and solid waste, etc., (in close cooperation with competent **regional public health centres**).

Based on this global and European framework, **North Macedonia** should redefine the national policy and institutional framework on **implementation of sustainable development goals** in a manner that stimulates **development** according to local developmental needs (bottom-up approach) and allows Macedonian cities and human settlements to become *inclusive, safe, resilient and sustainable by 2030*, and **guarantee high quality of living for all**, including the weakest and the most vulnerable groups in society.

In that regard, *the main challenge* is the fact that integrated planning of development and policy coherence is a relatively new concept that requires coordination mechanisms, operational budget and skills, and motivation for joint work. The integrated approach requires involvement of the broader public and all stakeholders.

> "**Improving the quality of human planning, arrangement and sustainable use of space** is one of the objectives for attainment of 2023 strategic priorities of the Government of the Republic of North Macedonia, i.e. "promote energy transition, investment in energy efficiency and **green development, *reduce air pollution and climate change effect***". [34]

II.6. STRATEGIC FRAMEWORK ON ADDRESSING ENVIRONMENTAL RISKS TO ROMA HEALTH AND LIVING CONDITIONS BY 2030

By signing international treaties and documents that are part of the Western Balkans' accession in the European Union and are related to Roma integration, [35] in its National Strategy on Roma Integration by 2030, North Macedonia has committed to:

- → *integrate* joint goals and targets for the Western Balkans aligned with the seven objectives defined in the EU Strategic Framework on Equality, Inclusion and Participation of Roma 2021 - 2030, including **sectoral goal no.7**: increase effective and equitable access to adequately desegregated housing and basic services;
- → *apply* regional standards on public budgeting for Roma integration in mainstream and specific policies;
- → *increase* the Budget of RNM and budgets of LSGUs allocated as direct support for implementation of defined goals for Roma communities;
- → *ensure* involvement of municipalities and Roma community in policy creation, decision-making, implementation and monitoring of measures to achieve goals and targets defined in the national strategic framework;
- → *ensure* use of available donor funds, including the Instrument for Pre-Accession Assistance (IPA III);
- → *establish* rigorous **mechanism for monitoring and evaluating progress**, including collection of statistical data.

According to the guidelines for planning and implementing national Roma strategies, [36] in respect to **delivery of environmental justice** as long-time undermined reality that makes Roma more vulnerable to contamination and other health-related problem, the National Strategy on Roma Inclusion by 2030 should:

- → *recognize* and deal with **environmental discrimination**, especially because it affects marginalized Roma communities in segregated areas (manifestation of anti-cyganism);
- → *promote* understanding about how **environmental discrimination and lack of environmental services** forces marginalized Roma to live in environmentally degraded areas;

[34] Decision on setting strategic priorities by 2023 of the Government of RNM. Available at: <https://www.nvosorabotka.gov.mk/sites/default/files/odluka%20za%20strateski%20prioriteti%202023.pdf>.

[35] Declaration of Western Balkan Partners on Roma Integration within the EU Enlargement Process - 2019 Poznan Declaration, Conclusion from the 2021 Berlin Process and EU Strategic Framework for Equality, Inclusion and Participation of Roma 2021 - 2030.

[36] EU Strategic Framework for Equality, Inclusion and Participation of Roma 2021-2030, Annex 1: Guidelines for Planning and Implementing National Roma Strategic Frameworks. Available at: <https://ec.europa.eu/info/sites/default/files/guidelines_for_planning_and_implementing_national_roma_strategic_frameworks_en.pdf>.

→ *focus* on access to water, adequate sanitation, waste collection and management services, and fight against existing spatial segregation as cause of **environmental discrimination in the area of housing and basic services;** [37]

→ *address* insufficient access of Roma to **green living areas** with recreational value;

→ *prevent* **environmental health risks** and deal with the health impact from exposure to pollution and contamination;

→ *ensure* health and safety at work for **those working in disadvantaged environmental conditions.**

The mechanism for progress monitoring and evaluation defined in the national strategic framework and related to **environmental discrimination and lack of environmental services** should:

→ *be based* on the **portfolio of indicators** defined by the EU Fundamental Rights Agency, [38] within **sector objective no.7a:** "fight against environmental shortcomings and promotion of environmental justice"; [39]

→ *anticipate* **explicit measures** to fight environmental deprivation and promote environmental justice;

→ *develop* **outcome indicators for exposure to hazardous environmental conditions and related health risks from:**

- living in areas susceptible to natural disasters (per type of disaster - river flooding, heavy rains, land sliding, etc.);
- living in hazardous environmental conditions (per type - substandard landfills and rubbish dumpsites, abandoned industrial facilities, mines, etc.);
- exposure to hazardous factors (per type - living in polluted areas, using untreated and contaminated water sources, exposure to toxic emissions, electromagnetic radiation, etc.);
- performance of dangerous occupations, including work at rubbish dumpsites, with garbage containers, etc., without protection;
- living in areas without proper infrastructure for safe drinking water, waste water treatment, asphalted roads, waste collection, etc.;
- share of households that burn solid waste for space heating.

Based on insight in the Roma Inclusion Strategy of the Republic of North Macedonia 2022 - 2030, it could be concluded that:

- In respect to HOUSING, the country has committed "to legalize, whenever possible, all informal settlements where Roma live or provide permanent, decent and desegregated housing for Roma living in informal settlements that cannot be legalized due to justifiable reasons".
- One basic principle of the strategy is "to improve the process for setting goals, collecting data, monitoring and reporting".

The strategy **does not adequately integrate:**

- guidelines for planning and implementing national Roma strategic frameworks in respect to "**delivering environmental justice**";

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[37] *"Environmental discrimination"* affects Roma living in segregated settlements amidst hazardous environmental conditions (landfills, abandoned industrial facilities, or flooding areas), deprived of basic environmental protection needs such as water supply and waste management. This long-time undermined reality has revealed its disproportional effects during the COVID-19 pandemic, making marginalized communities more vulnerable to contamination and other health-related problems.

[38] The portfolio's **overall goal** is to monitoring progress under objectives and targets defined in the EU Roma Strategic Framework. This is aligned with relevant EU initiatives by 2030 and with SDGs. Available at: <https://ec.europa.eu/info/sites/default/files/portfolio_of_indicators_en.pdf>.

[39] Environmental deficiency is absence of physical environmental conditions that could contribute to better health and wellbeing (e.g., clean air and water, safe neighbourhood streets and parks, adequate housing etc.).

• the portfolio of indicators for strategy monitoring and evaluation in respect to **sector objective no.7a: "fight against environmental deficiencies and promote environmental justice".**

➜ Definition of the strategy's national targets does not take into account the **territorial dimension of its impact**, [40] having in mind the fact that Roma live in 47 from total of 80 municipalities, mostly cities, which should be the basis for setting the strategy's territorial scope, i.e. precise establishment of municipalities and townships that will be covered by measures anticipated in respect to HOUSING.

➜ There has been no research to identify **environmental health risks** that affect *Roma living in poor, informal settlements*, which would serve as baseline for addressing the health impact of exposure to pollution and contamination, improving Roma health and living conditions, and bridging the gap between Roma and the general population.

➜ The Strategy on Roma Inclusion of the Republic of North Macedonia 2022 - 2030 should include relevant *plans and measures to address environmental risks that affect Roma living in poor, informal settlements* ***based on data at the level of poor and informal settlements*** that have potential to change current negative trends in respect to health and shorter life expectancy among Roma compared to the general population and contribute to *attainment of national and global goals and targets defined in the 2030 Agenda:*

• to significantly reduce the number of deaths and diseases causes by dangerous chemicals, pollution of air, water and soil;

• to ensure access to adequate, safe and affordable housing and basic services for all.

[40] Territorial impact assessment reconsiders all aspects of impact assessment (economic, social and environmental) in terms of the implementation on particular geographic location.

III. CLIMATE-SENSITIVE HEALTH RISKS AMONG ROMA IN NORTH MACEDONIA

III.1. CLIMATE CHANGE AND ENVIRONMENT FACTORS THAT AFFECT HUMAN HEALTH

The climate change de facto affects human health, in various ways, and leads to death and emergence of different diseases that are result of extreme climate change such as:

- heat waves;
- storms and floods;
- food chain disruption;
- increase in animal -, food -, water - and vector-borne diseases (ticks, mosquitos, lice, fleas, flies, horseflies, etc.).

The climate change affects people's health both directly and indirectly, and is fully related to environmental, social and public health determinants. [41]

Health risks caused by climate change disproportionately affect the most vulnerable and underserved population groups, including women, children, ethnic minorities, poor communities, migrants and displaced persons, elderly populations and those with diagnosed diseases. [42]

While it cannot be denied that climate change affects human health, accurate assessment of its impact level on health remains a particular challenge. Nevertheless, scientific progress gradually allows higher morbidity and mortality rates to be attributed to man-made global warming and to precisely determine risks and scope of these phenomena as threat to human health. In the short- to medium-term, the health impact of climate change will be determined mainly by the vulnerability of populations, their resilience to the current rate of climate change, and the extent of adaptation to climate change. In the longer-term, the effects will increasingly depend on the extent to which transformational action is taken now to reduce harmful emissions, avoid the breaching of dangerous temperature thresholds and potential irreversible tipping points. [43]

Climate change that happens across the world are also felt in our country. Having in mind the level of economic development, social dependence and demographic structure (poverty, unplanned urbanization, lack of state control and aid, aging population, etc.), the country greatly contributes to creation of climate change risks and population's exposure to such risks compared to other states. However, who and how is affected by climate change in the country primarily depends on the individual's position and place of residence, especially because the extent of exposure to effects of climate change differs, depending on the population's individual and social characteristics, which could have more favourable effect in terms of health protection or negative effect on health and increased exposure. Hence, on the account of their socio-economic conditions, place of residence and infrastructure equipment, Roma people, but especially children, women and elderly people, are disproportionately affected and less resilient to health risks caused by climate change.

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41 Climate change and health, 30 October 2021, WHO, <Climate change and health (who.int)>.

42 Ibid.

43 Ibid.

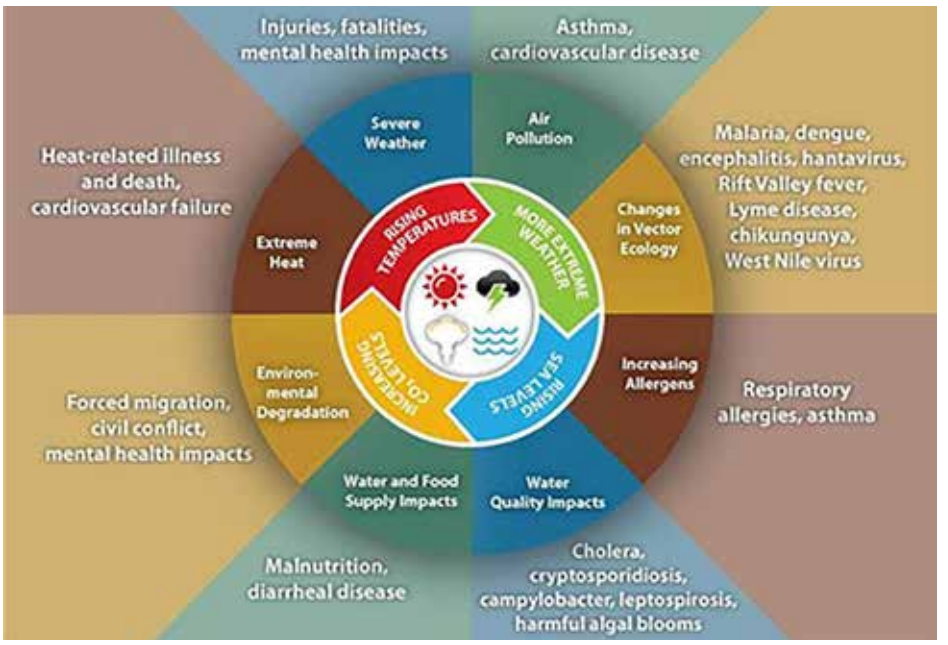


FIGURE no.1: Climate change effect on human health (inner circle – climate change, outer circle – climate change outcomes and effects, and lateral fields - health risks caused by climate change) [44]

Climate change brings about intensified diseases such as, for example, asthma and cardiovascular conditions, respiratory infections and allergies, acute gastrointestinal diseases, carcinoma, heart attacks and strokes, etc. (Figure 1). [45] At global level, it is estimated that almost 24% of deaths are result of climate change and preventable to great extent. Hence, investment and dedicated work to addressing climate change are of crucial importance to reducing many communicable and non-communicable diseases and injuries. Specific actions taken at global and local level could prevent: [46]

- ➜ 29% of deaths caused by ischemic cardiovascular diseases;
- ➜ 28% of stroke cases;
- ➜ 21% of carcinoma cases;
- ➜ 55% of respiratory infection cases;
- ➜ 61% of health conditions that cause diarrhoea;
- ➜ 53% of chronic obstructive pulmonary disease cases;
- ➜ 40% of traffic accident injuries;
- ➜ 76% of accidental poisoning.

Among other things, this study assesses resilience and preparedness of Roma living in 6 municipalities in the Republic of North Macedonia to address environmental risks and to improve their health. Assessment of environmental risks' impact on Roma health and living conditions is based on data collected as part of the field survey among 2,171 households. To assess the impact of different factors (internal and external) on Roma health, this research compares data on living and working conditions, communal services, urbanization and construction quality of housing units with data on health status of household members covered by the survey. Data comparison was made on the basis of WHO's list of indicative correlations between environmental risks and health diseases and injuries. [47].

[44] Preparing for the Regional Health Impacts of Climate Change in the United States, Center for Diseases Control and Prevention, National Center for Environmental Health, July 2020. Available at: <Climate Effects on Health | CDC>.

[45] For connection between climate change and health risks, see Table 1.1. in Compendium of WHO and Other UN Guidance on Health and Environment, April 2022 update. Available at: <Compendium of WHO and other UN guidance on health and environment>.

[46] Compendium of WHO and Other UN Guidance on Health and Environment, April 2022 update. Available at: <Compendium of WHO and other UN guidance on health and environment>.

[47] For connection between climate change and health risks, see Table 1.1. in Compendium of WHO and Other UN Guidance on Health and Environment, April 2022 update. Available at: <Compendium of WHO and other UN guidance on health and environment>.

III.2. ENVIRONMENTAL RISKS AND EFFECTS ON ROMA HEALTH AND LIVING CONDITIONS

As regards environmental risks that affect human health, this research focused on assessing air pollution; water; sanitary conditions and hygiene at households; direct exposure to cigarette smoke; urbanization of settlements and opportunities for recreation; waste management; access to clean water; infrastructure fittings in households; working conditions; and other risks arising from internal and external factors. In terms of respondents' health, information was collected in respect to prevalence of acute gastro-intestinal [48] and respiratory [49] infections in the last 2 months (i.e. in the period of March, April and May 2022, depending on the date when the survey was conducted); household members suffering from chronic diseases (diabetes, hypertension, heart disease, heart attack, stroke, chronic kidney diseases, asthma, chronic pulmonary diseases, tuberculosis, carcinoma, chronic liver disease, etc.).

According to records kept by general practitioners (family doctors) with significant share of Roma patients in settlements covered with the survey, majority of Roma patients [50] suffer from hypertension (36%), acute tonsilitis (12%) and type 2 diabetes (10%) (Chart 1).

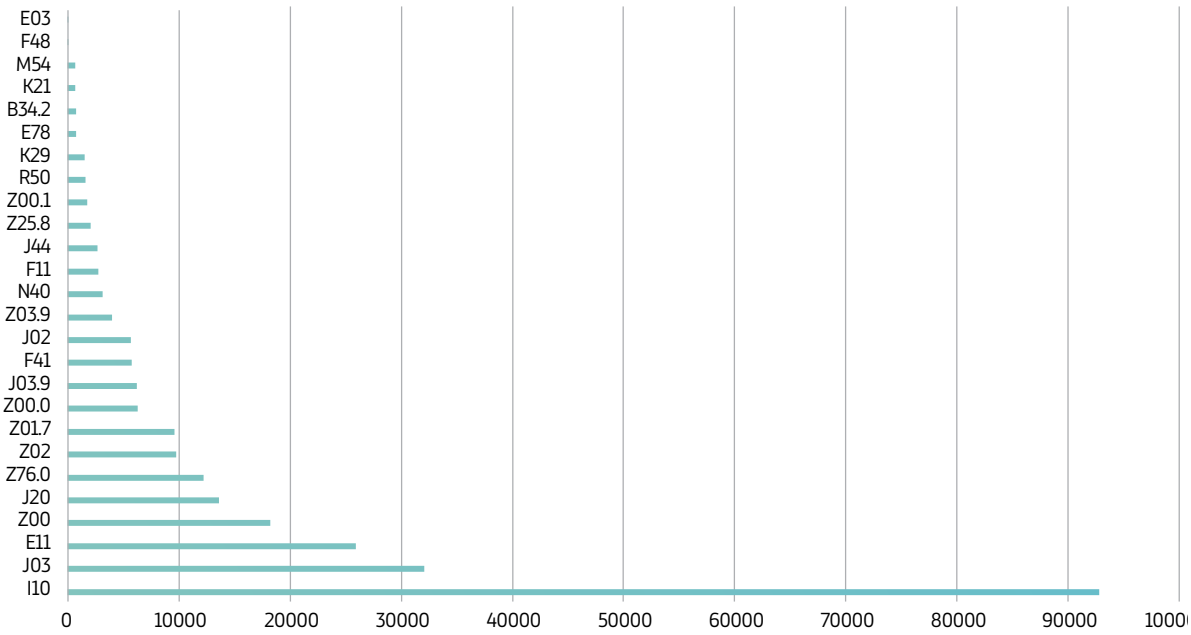


CHART no. 1: Number of diagnoses reported by general practitioners with the highest shares of Roma patients living in settlements covered by the survey research

SOURCE: MY TERM

MKB10 and insight in all diagnoses is available on this link:
<(JANA)THE INTERNATIONAL STATISTICAL CLASSIFICATION OF DISEASES (fzo.org.mk)>.

Hypertension and diabetes are the most frequent diagnoses reported by the general population and by Roma. Occurrence of these two diseases is affected by a multitude of factors, most important of which are social health determinants such as: nutrition, stress, inadequate socio-economic living conditions, and other. Negative effect of social determinants on Roma health

[48] Vomiting, diarrhoea, stomach pain, etc.

[49] Cold, cough, running nose, sore throat, difficult breathing, bronchitis, pneumonia, etc.

[50] Data from general practitioners concern all patients and are not segregated by ethnicity.

leads to occurrence of these and other chronic diseases, making Roma people less resilient and adjustable to climate change and environment degradation. Tonsilitis (as diagnosis) caused by bacterial or viral infections is triggered by change to environment and climate (high temperatures, frequent temperature changes in short time intervals, heavy rains, etc.). [51] It is important to note that general practitioners (17) with the highest shares of Roma patients covered by this research have recorded a total of 25 diagnoses related to cardiovascular conditions and respiratory infections whose occurrence could be attributed to continuous exposure to pollution and disadvantaged living and housing conditions.

Survey data on most frequent diagnoses among Roma people do not significantly differ from those recorded by general practitioners, i.e. more than half of respondents and household members (54%) suffer from chronic diseases, most common among them being hypertension (19%), diabetes (10%) and heart disease (7%) (Chart 2).

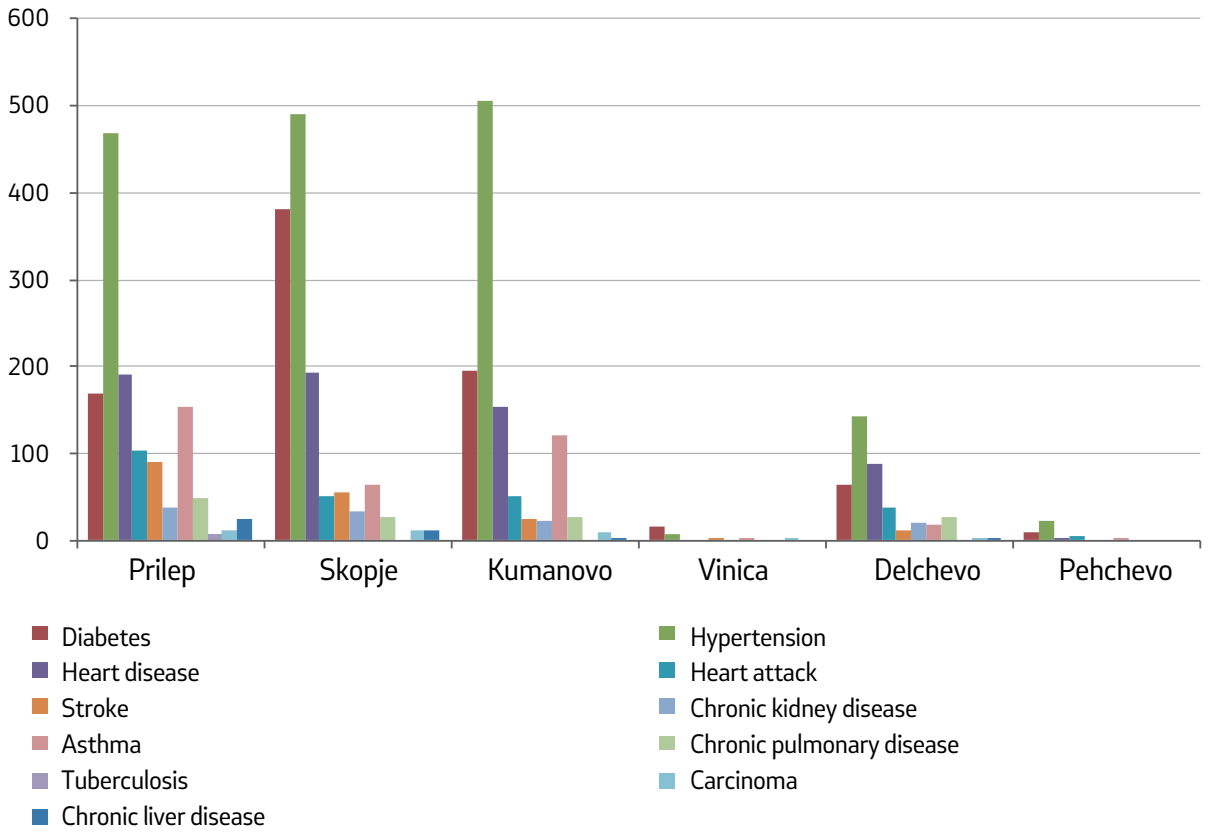


CHART no. 2: Number of Roma who suffer from different chronic diseases, per municipality

While the nominal number of Roma suffering from chronic diseases is the highest in Prilep, Skopje and Kumanovo, the highest prevalence rate of all three most common diseases is observed among Roma in the Municipality of Delchevo (hypertension: 516 per 1000 population; diabetes: 233 per 1000 population, and heart disease: 324 per 1000 population). Roma from the other three municipality reported two to three times lower prevalence of chronic diseases compared to those observed in Delchevo. For example, the prevalence rate of hypertension stands at 204 per 1000 population; diabetes accounts for 159 per 1000 population, and heart disease is 80 per 1000 population (Chart 3).

[51] Compendium of WHO and other UN guidance on health and environment, April 2022 update. <Compendium of WHO and other UN guidance on health and environment>.

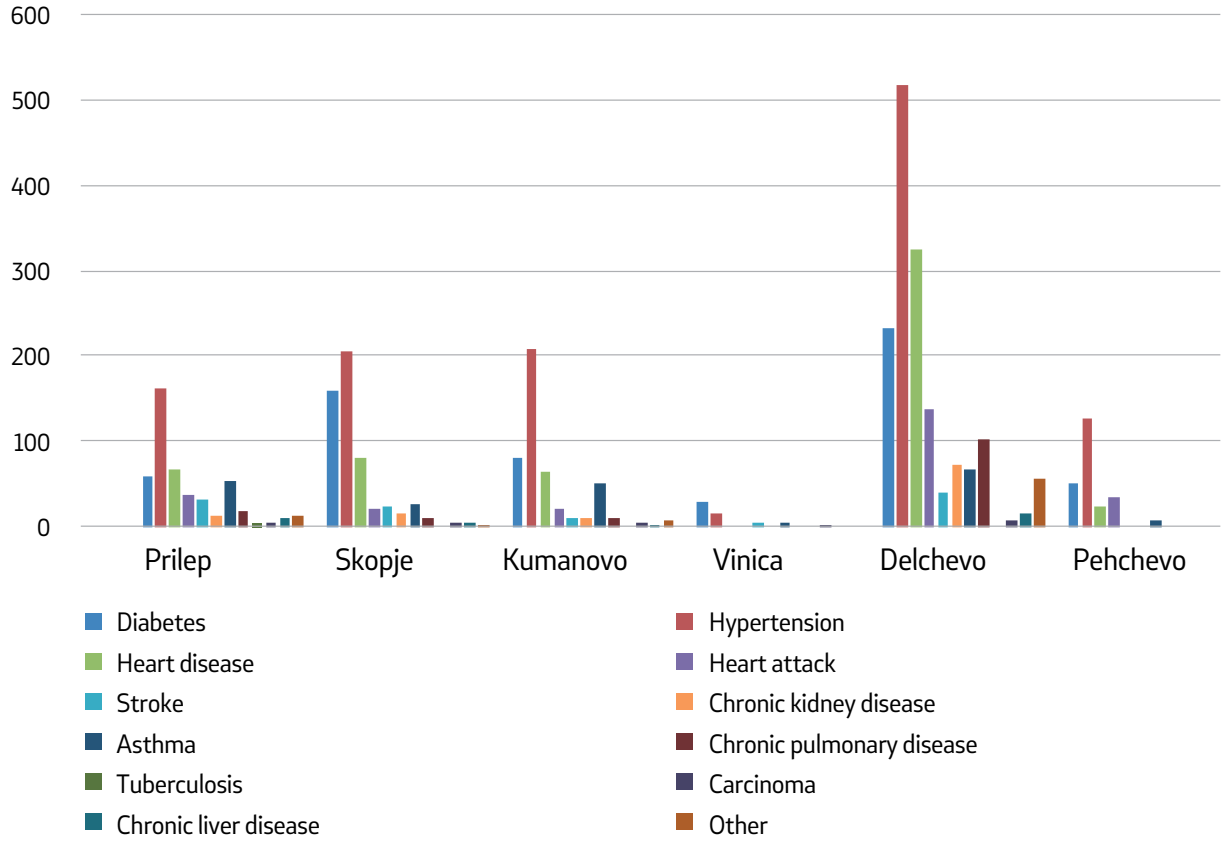
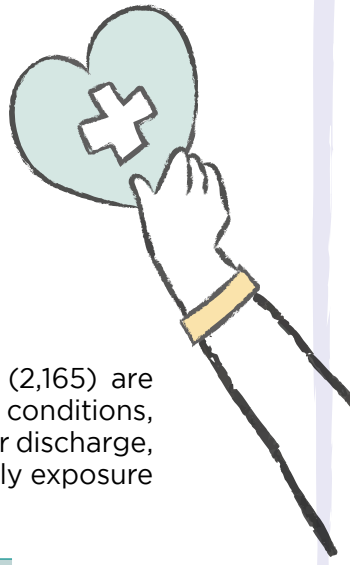


CHART no. 3: Prevalence of chronic diseases among Roma, per municipality

III.3. HEALTH OUTCOMES FROM SIMULTANEOUS EXPOSURE TO SEVERAL ENVIRONMENTAL RISKS AMONG ROMA



According to survey results, with the exception of six, all Roma households (2,165) are exposed to one or more health risk factors linked to disadvantaged housing conditions, indoor pollution, unsafe sources of drinking water, unsafe methods of waste water discharge, and exposure to occupational risks (see Annex 1). Most households reported daily exposure to health risks in the range from 2 to 7 (Table 1).

Number of health risk factor	Number of households exposed to the health risk factor	Share from total number of households
0	6	0,3
1	73	3,4
2	126	5,8
3	393	18,1
4	548	25,2
5	423	19,5
6	294	13,5
7	109	5,0
8	71	3,3
9	29	1,3
10	13	0,6
11	26	1,2
12	21	1,0
13	10	0,5
14	10	0,5
15	7	0,3
16	8	0,4
17	3	0,1
18	1	0,0
TOTAL	**2171**	**100,0**

TABLE no. 1: Breakdown of the number of households exposed to health risk factors

Hence, survey results show that risks to which household members are exposed lead to occurrence of chronic diseases, which means that the higher number of risk factors in households, more household members are suffering from at least one chronic disease. On the other hand, the lowest prevalence of chronic diseases is noted among households that are not exposed to any risk factors.

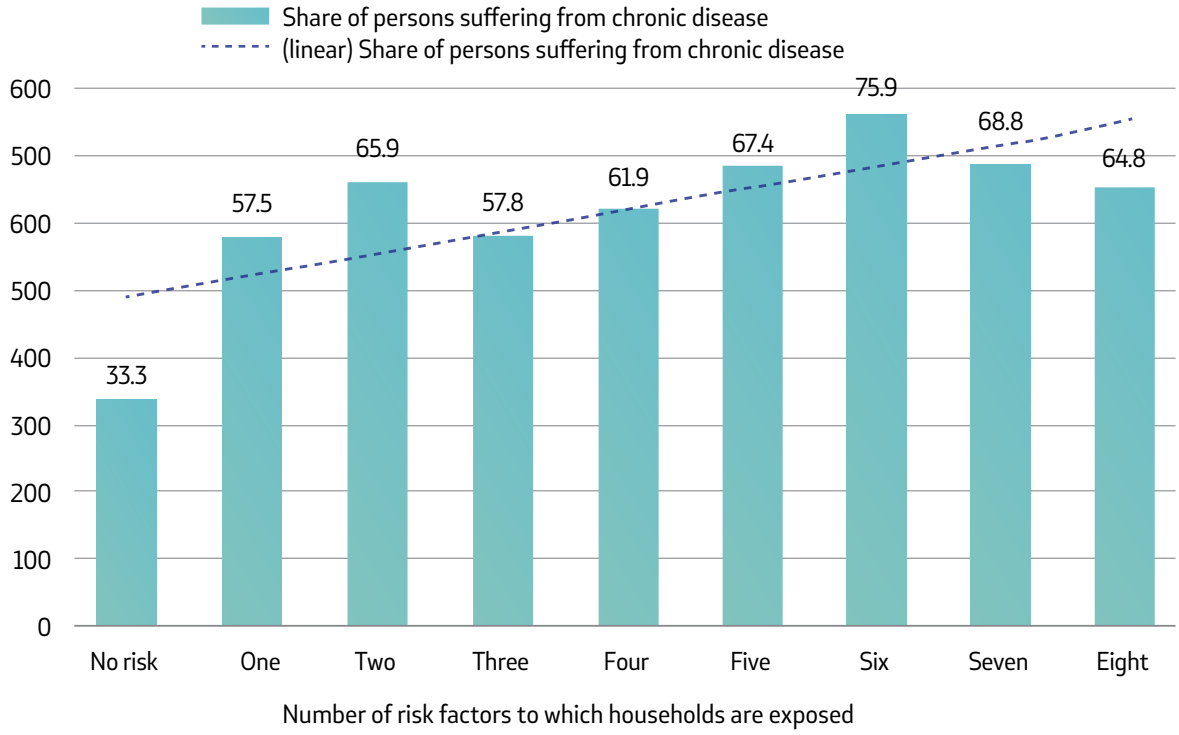


CHART no. 4: Share of persons with chronic disease according to the number of health risk factors they are exposed to

Data obtained from survey respondents (n=2,171) show that 1,010 of them (47%) have at least one chronic disease, while 472 respondents (22%) reported multimorbidity [52] (existence of two or more chronic diseases with one person). Respondents with multimorbidity reported 2 to 7 chronic diseases. Increased occurrence of multimorbidity among these people has long-term effect on deteriorated health and quality of life, and decreases the individual's life expectancy. Namely, it is established that, on average, chronic diseases reduce a person's life expectancy by 1.8 years, ranging from 0.4 years with occurrence of 1 chronic disease to 2.6 years with occurrence of 6 chronic diseases. [53] This means that when a person suffers from 6 chronic diseases, he/she has shorter life expectancy by 11 years compared to person without any chronic diseases. On average, respondents suffer from 2 chronic diseases, which means that, potentially, each person has shorter life expectancy by 3.6 years compared to person without any chronic diseases.

[52] Chudasama Y. V. et al. Healthy lifestyle and life expectancy in people with multimorbidity in the UK Biobank: A longitudinal cohort study. PLoS Med. 2020 Sep 22; 17(9):e1003332. doi: 10.1371/journal.pmed.1003332. eCollection 2020 Sep.

[53] DuGoff E. H. et al. Multiple chronic conditions and life expectancy: a life table analysis. Med Care. 2014 Aug; 52(8):688-94. doi: 10.1097/MLR.0000000000000166.

III.3.1 AIR POLLUTION

(AMBIANCE AIR POLLUTION AND INDOOR POLLUTION, I.E. POLLUTION OF AIR INSIDE HOUSEHOLDS, DIRECT EXPOSURE TO CIGARETTE SMOKE, HUMIDITY AND MILDEW)

Air pollution is result of a series of external (ambiance) and internal (household-caused) factors, including: heating, cooking and lighting devices; motor vehicles; industrial facilities; forest fires; setting fire on rubbish dumpsites; humidity and mildew in households, etc. Inhaling polluted air is the cause of approximately 7 million deaths among newborns and almost identical number of deaths by stroke, ischemic heart disease, chronic obstructive pulmonary disease (COPD), lung cancer and acute respiratory infections. Almost half of the world population lives in households exposed to smoke from cooking with non-environmental fuel and technology, which has particular effect on women and children who spend more time in the home. Indirect exposure to cigarette smoke leads to 1.3 million deaths annually, while direct exposure to cigarette smoke (active smoking) leads to 7.7 million deaths. Humidity and mildew in the households leads to pollution caused by microorganisms (fungi and bacteria) which, in turn, cause respiratory diseases, allergies and asthma, and lower the population's immunity. [54]

In the period 2010 - 2018, the average level of PM25 particles in the Republic of North Macedonia accounted for 31 mg/m3 annually, which is 6 times above the annual average recommended by the World Health Organization [55] (Chart 5). According to the most recent statistical data from WHO, the mortality rate from circulatory system diseases (heart attack, stroke, etc.) in our country stands at 5.38 per 100,000 population, and is 5 times higher compared to EU member states, while the mortality rate from malignant diseases stands at 3.23 per 100,000 population, which is by one-fifth higher compared to EU member states. Furthermore, 60% of respondents reported acute respiratory diseases in the last two months (cough, sore throat, pneumonitis, bronchitis, etc.). In that respect, the poor quality of (indoor and outdoor) air in Roma environments greatly contributes to increased number of deaths from serious diseases.

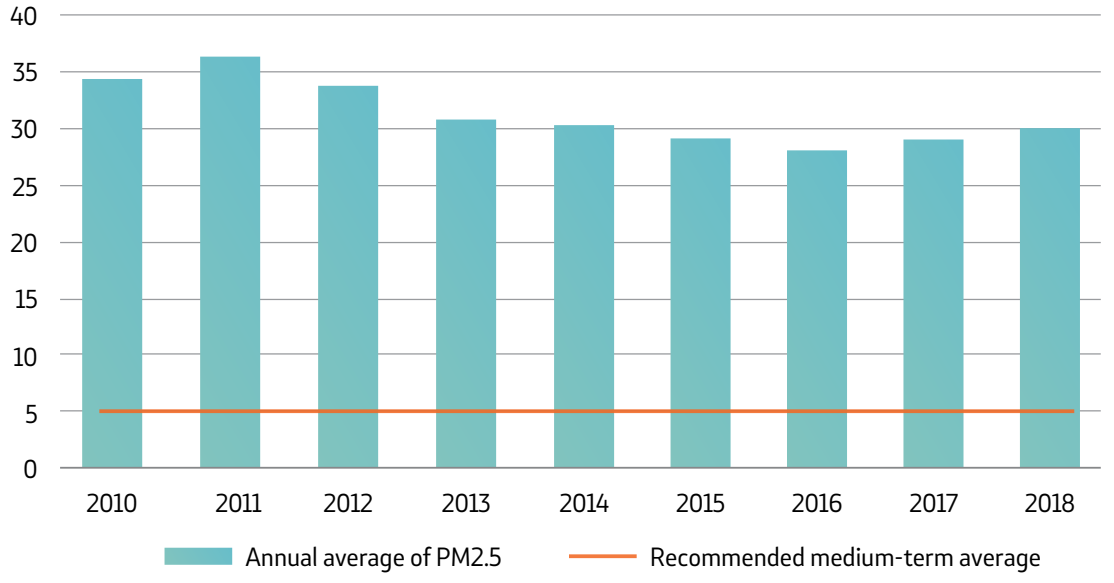


CHART no. 5: Ниво на PM2.5 честички во РСМ наспрема препорачан годишен просек од СЗО за периодот од 2010 до 2018 година

[54] Compendium of WHO and other UN guidance on health and environment, April 2022 update. <Compendium of WHO and other UN guidance on health and environment>.

[55] Compendium of WHO and other UN guidance on health and environment, April 2022 update. <Compendium of WHO and other UN guidance on health and environment>; WHO Global Ambient Air Quality Database for North Macedonia <SDG Indicator 11.6.2 Concentrations of fine particulate matter (PM2.5) (who.int)>.

While pollution caused by external factors is equally detrimental to health of all citizens in the Republic of North Macedonia, internal polluters are more prominent in Roma environments, primarily due to the construction quality of housing units and living conditions (40% of Roma live in illegally constructed housing units, of which 2% are informal dwellings), and inability to secure quality fuel and devices for heating, cooling and cooking due to poor socio-economic conditions that affect Roma. In addition, 22% of respondents live in vicinity of hazardous environmental conditions (contaminated industrial locations, substandard landfills and rubbish dumpsites). Moreover, the single energy source for heating in the case of 14% of respondents are coal, wood, tiers and waste and these are also the single energy source for cooking in the case of 16% of them. Around half of respondents are exposed to cigarette smoke (47%) and live in housing units with humidity and mildew (48%).

Hence, continuous exposure to outdoor and indoor polluted air is an important factor that contributes to poor health among the general population, but especially among Roma.

Almost half of Roma living in households with indoor pollution due to the type of fuel used for cooking (48%) are also affected by some chronic disease. Almost the same share of them are affected by acute respiratory diseases.

Smoking, i.e. exposure to cigarette smoke in the home, leads to 56% of Roma living in households where indoor smoking is allowed to be affected by acute respiratory diseases. Unlike these households, acute respiratory diseases among Roma living in non-smoking households is by 12 percentile points lower (Chart 6).

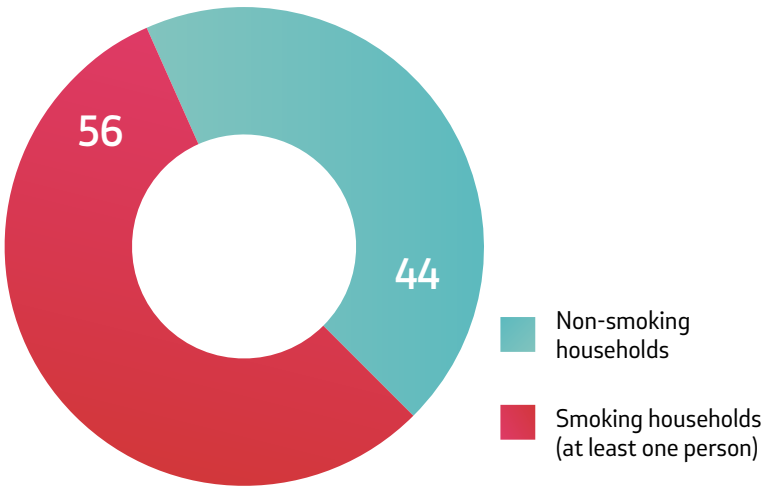


CHART no. 6: Share of acute respiratory diseases in the last 2 months by Roma living in smoking households and Roma living in non-smoking households

Cigarette smoking, as factor of indoor household pollution, affects occurrence of chronic diseases among Roma. More specifically, members of smoking households are by 14 percentile points more likely to suffer from chronic diseases compared to members of non-smoking households (Chart 7).

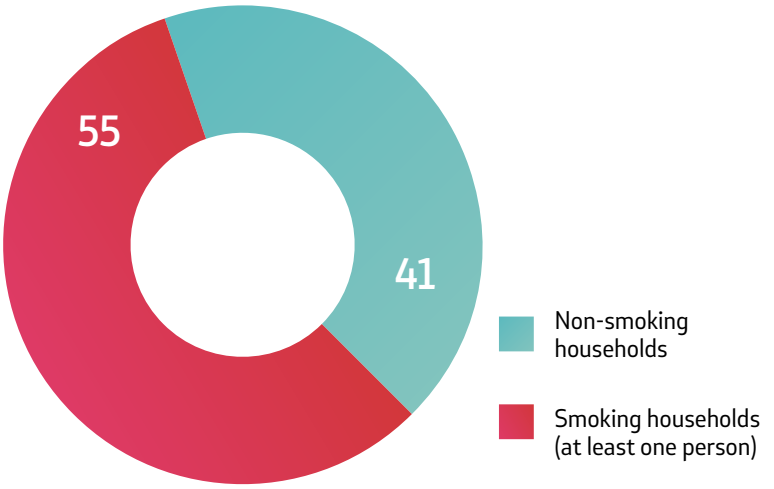


CHART no. 7: Share of chronic diseases among Roma living in smoking households versus Roma living in non-smoking households

III.3.2 WATER, SANITARY CONDITIONS AND HYGIENE

(DRINKING WATER, WATER FOR SPORTS, TOILET, PERSONAL HYGIENE)

Water, sanitary conditions and hygiene (WASH) are key preconditions for people's health and wellbeing. Access to quality and safe water, sanitary conditions and hygiene are recognized as fundamental human right and these are not only determinants of better health, but also of dignified life. Inadequate water, sanitary conditions and water cause a series of diseases, mainly due to use of water contaminated with different pollutants (chemicals and faeces); inadequate personal hygiene as a result of lack or no access to water; contact with pathogen-infected water; contact with vector-borne disease carried in water. At global level, it is estimated that 829 thousand diarrhoea-causing diseases are result of unsafe water, sanitary conditions and hygiene. Access to clean drinking water in households is fundamental right of all citizens in the Republic of North Macedonia, especially due to the fact that water has multiple uses in the household (washing, cooking, etc.) and food preparation/production. In addition to contaminated drinking water, inadequate sanitary conditions in households and improper treatment of waste waters are other significant contributors to emergence of various diseases such as: diarrhoea, diseases caused by microparasites that live in the soil, inadequate and insufficient nutrition, etc. Furthermore, personal hygiene conditions and possibilities are another precondition of good health. Hence, access to hygiene products and quality water for personal and household hygiene is another precondition for protection of the population against diarrhoea, respiratory infections and other diseases caused by microparasites that live in the soil. [56]

Therefore, it can be concluded that limited access to quality and safe water, sanitary conditions and hygiene for Roma due to locations where they live, poor socio-economic conditions and possibilities for urban planning, are another primary factor that affects poor health results in these communities.

According to survey results, 38% of Roma respondents reported acute gastrointestinal health conditions in the last 2 months, including stomach pain, diarrhoea and vomiting. Moreover, 10% of Roma respondents live on locations that do not have organized supply of drinking water and compensate lack of drinking water with water from springs (whereby 74% of them secure drinking water from surface unprotected springs and 26% from protected springs). One quarter of respondents with organized supply of drinking water have faced restrictions due to lack of water at the main water supply source connected to households. 15% of Roma respondents live in households without connection to the sewage system for waste water discharge, while 94% of them live on locations without constructed atmospheric water

[56] Compendium of WHO and other UN guidance on health and environment, April 2022 update. <Compendium of WHO and other UN guidance on health and environment>.

drains. Furthermore, 5% of Roma respondents do not have personal hygiene products. On the other hand, 4% of surveyed households reported discharge of waste water to unknown destination. More than half of respondents share their toilet with members from other households.

According to survey results, Roma households where people wash hands in portable lavatories (bucket, pitcher, etc.) or do not have hand-washing stations/lavatories inside their home are by 13 percentile points more likely to suffer from acute gastrointestinal diseases compared to Roma that have water supply pipes in their home and wash hands in adequate conditions (lavatory, toilet, etc.) (Chart 8).

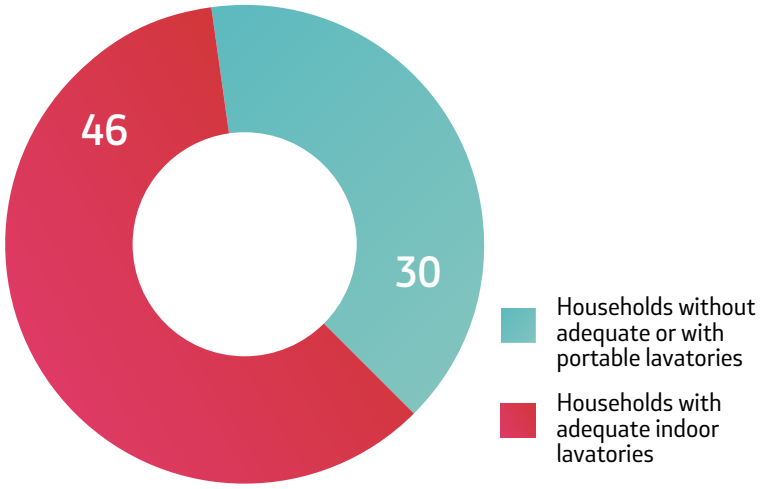


CHART no. 8: Share of reported acute gastrointestinal diseases in the last 2 months among Roma living in household without or with portable lavatories (bucket, pitcher, etc.) versus Roma living in households with adequate indoor lavatories and water supply pipes

Furthermore, survey data show that the type of toilet in Roma households (flushing or non-flushing) does not affect occurrence of gastrointestinal diseases among this population (vomiting, diarrhoea, stomach pain, etc.), In particular, 29% of respondents from households with flushing toilets and 30% of respondents from households with non-flushing toilets reported gastrointestinal diseases in the last 2 months. Occurrence of acute gastrointestinal diseases is primarily conditioned by the fact whether the toilet is shared with other people who are not household members. Hence, 40% of Roma who share their toilet with members of other households more frequently reported (by one quarter) gastrointestinal diseases compared to Roma who do not share their toilet with other households (29%) (Chart 9).

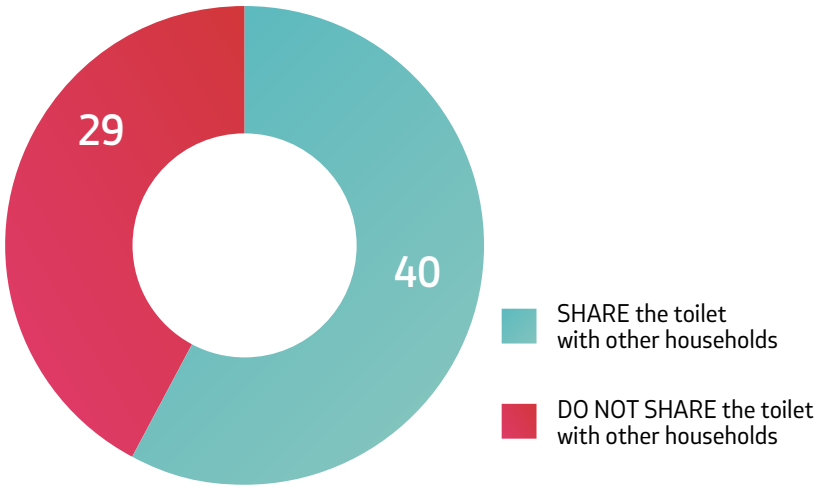


CHART no. 9: Share of reported intestinal diseases in the last 2 months among Roma who share their toilet with members of other households versus Roma who do not share their toilet with members of other households

Survey data show that Roma living in households with septic tanks for waste water discharge are more likely to suffer from gastrointestinal infectious diseases compared to those living in households without septic tanks. More specifically, 34% of Roma who have septic tanks reported gastrointestinal diseases in the last 2 months compared to 28% of Roma who do not have septic tank (Chart 10). In the case of households with septic tanks, factors that contribute to occurrence of gastrointestinal infectious diseases include regular cleaning of septic tanks and entity that cleans septic tanks. This means that number of Roma households with reported acute gastrointestinal diseases remains the same irrespective of the fact whether they have or do not have septic tank and whether septic tanks are cleaned by professional service providers or household members.

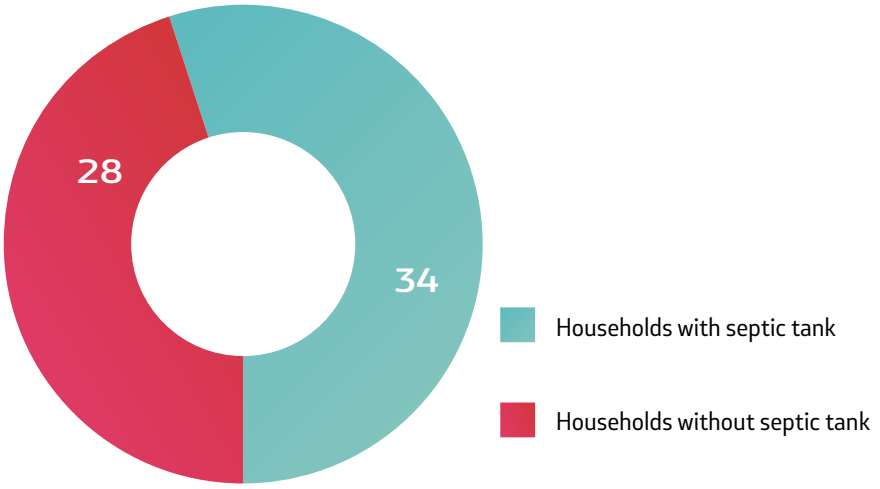


CHART no. 10: Share of reported gastrointestinal diseases in the last 2 months among Roma living in households where waste water is discharged into septic tanks versus Roma living in households where waste water is discharged in the sewage system

III.3.3 WASTE MANAGEMENT

Waste management is another key factor for healthy environment and better human health. This process starts with waste creation, followed by waste transport, disposal and treatment. Hence, inadequate method of waste disposal and treatment, such as illegal landfills without soil and surface water protection measures, is one of the most important threats to environment and human health in our country, but also across the world. This pollution factor is crucial for undesired health results among Roma. First and foremost, absence of urban planning on the locations where Roma live (no access to adequate places for waste disposal and lack of services for waste collection and transport) contributes to continuous creation of illegal and uncontrolled landfills within settlements populated by Roma. Moreover, their socio-economic status leads to Roma people using waste as primary source of income (e.g., collection and sales of plastic, cardboard, copper, iron, etc.) or as primary source of household assets (e.g., clothing, food, furniture, etc.). Another key factor that affects health and wellbeing of this population group concerns setting fire at illegal landfills and using waste as fuel for space heating and cooking. [57]

According to survey results, 22% of Roma respondents live in vicinity of hazardous environmental conditions (contaminated industrial locations, substandard landfills and rubbish dumpsites).

Roma who dispose their household waste at illegal landfills are by 12 percentile points more exposed to acute gastrointestinal diseases. More specifically, 41% of Roma who dispose waste on illegal landfills reported acute gastrointestinal diseases compared to 29% of Roma who dispose waste into household bins and garbage containers.

[57] Compendium of WHO and other UN guidance on health and environment, April 2022 update. <Compendium of WHO and other UN guidance on health and environment>.

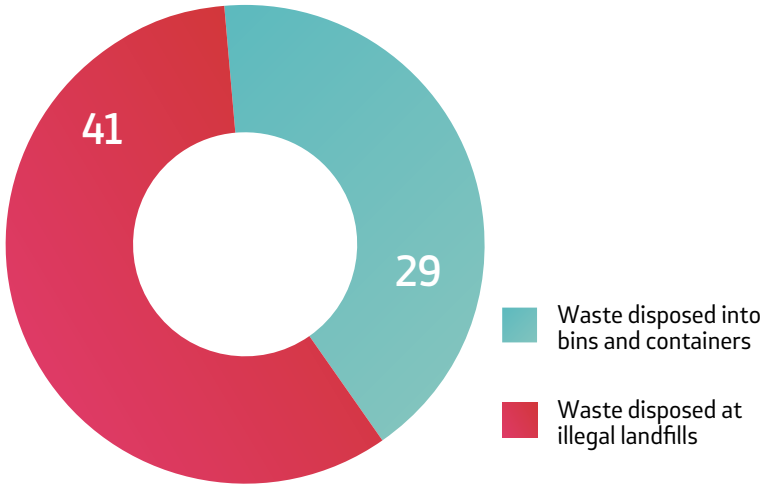


CHART no. 11: Share of reported gastrointestinal diseases in the last 2 months among Roma who dispose waste at illegal landfills versus Roma who dispose waste into household bins and garbage containers

III.3.4 URBAN PLANNING AND INFRASTRUCTURE CONDITIONS

Cities and other urban communities provide many opportunities for better health and life, cleaner environment and climate action. Hence, well defined urban policies can contribute to better health results, especially due to the fact that health is the basis for: better living, productive labour, more resilient communities, physical mobility, social interaction and protection of vulnerable population groups. In that respect, urban planning, including spatial planning, can contribute to betterment or deterioration of human health. Lack of urban planning on most locations across North Macedonia mainly populated by Roma, including absence of water supply and sewage systems and waste management, non-asphalted streets/roads, absence of organized local transport, unplanned settlements in protected areas or areas exposed to risks, etc., amount to basic precondition for occurrence of diseases and negative health results compared to the general population. Moreover, construction methods and materials used in housing units contribute to increased health risks. [58]

According to survey results, 40% of Roma respondents live in housing units without construction permit, 99% live in settlements that are not provided with construction and maintenance of local roads, 97% live in settlements without public hygiene services and atmospheric water drains, while 22% live in settlements without waste collection and disposal system.

Furthermore, data from the survey show that Roma who live in substandard housing units, i.e. housing units with walls made of natural or primitive materials or without traditional walls, are more likely to suffer from acute respiratory diseases compared to those who live in housing units with pre-manufactured walls. Acute respiratory diseases were reported by 51% of Roma living in housing units with walls made of primitive, natural or non-traditional materials, compared to 33% of Roma living in housing units with pre-manufactured walls. In conclusion, survey results show that substandard housing conditions lead to more frequent occurrence of acute respiratory diseases (Chart 12).

[58] Compendium of WHO and other UN guidance on health and environment, April 2022 update. <Compendium of WHO and other UN guidance on health and environment>.

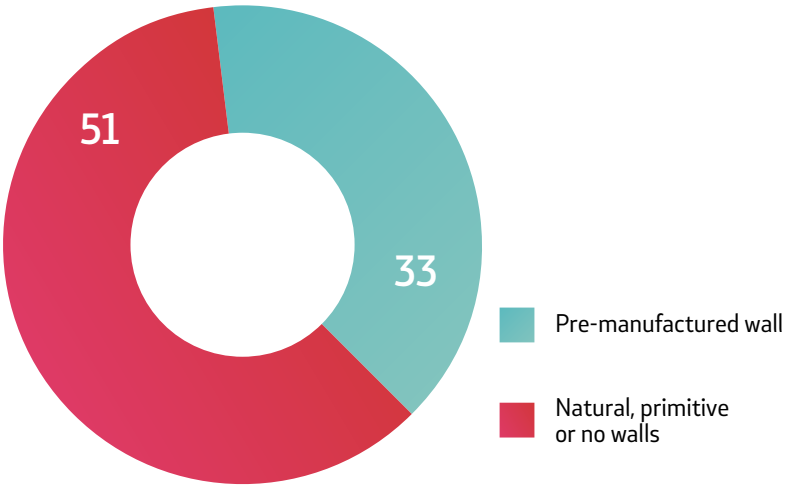
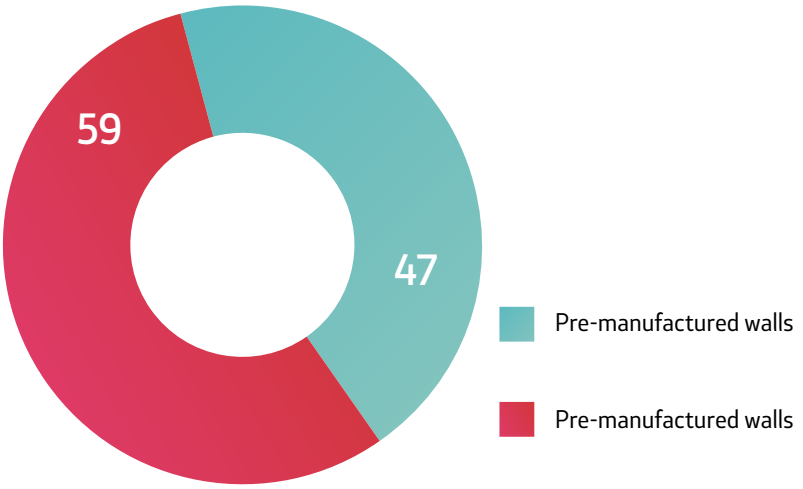


CHART no. 12: Share of reported acute respiratory diseases in the last 2 months among Roma who live in housing units with walls made of natural or primitive materials versus Roma who live in housing units with pre-manufactured walls

Type of construction materials used in Roma housing units does not only affect occurrence of acute respiratory diseases , but also occurrence of various chronic diseases among this ethnic community. In particular, people who live in housing units with primitive, natural or non-standard walls are by 12 percentile points more likely to suffer from chronic diseases compared to those who live in housing units with pre-manufactured walls. Chronic diseases were reported by 47% of Roma who live in housing units with pre-manufactured walls and by 59% of Roma who live in housing units with walls made of primitive, natural or non-standard materials (Chart 13).



ГРАФИКОН бр. 13: Share of reported chronic diseases among Roma who live in housing units made of natural or primitive materials and without standard walls versus Roma who live in housing units with pre-manufactured walls

Occurrence of chronic diseases is highly conditioned by the type of material used for roofs construction in Roma housing units. In particular, 48% of Roma living in housing units with pre-manufactured roof reported their members are suffering from some chronic disease, which is by 13 percentile points less compared to Roma living in housing units with primitive or natural roof (Chart 14).

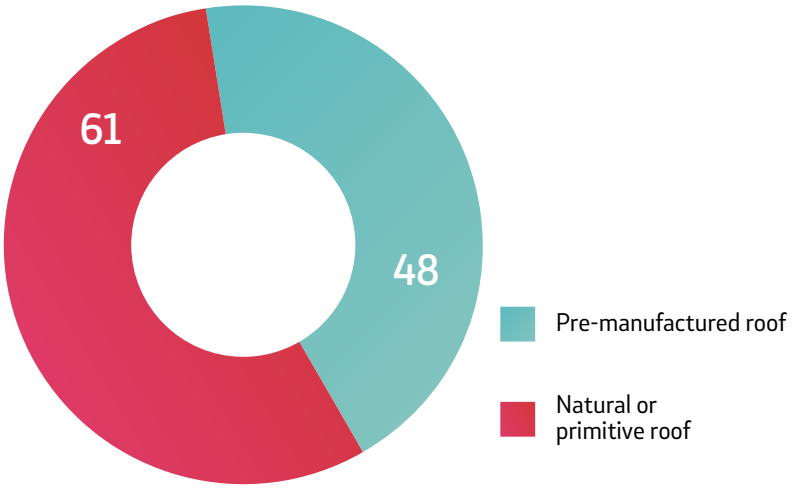


CHART no. 14: Share of reported chronic diseases among Roma who live in housing units with pre-manufactured roof versus Roma who live in housing units with roof constructed from natural or primitive materials

Furthermore, the type of material used for roof construction in Roma housing units affects occurrence of acute respiratory diseases among household members. More specifically, Roma living in housing units with roof made of natural or primitive material reported by 10 percentile points higher frequency of acute respiratory diseases compared to Roma living in housing units with pre-manufactured roof (Chart 15).

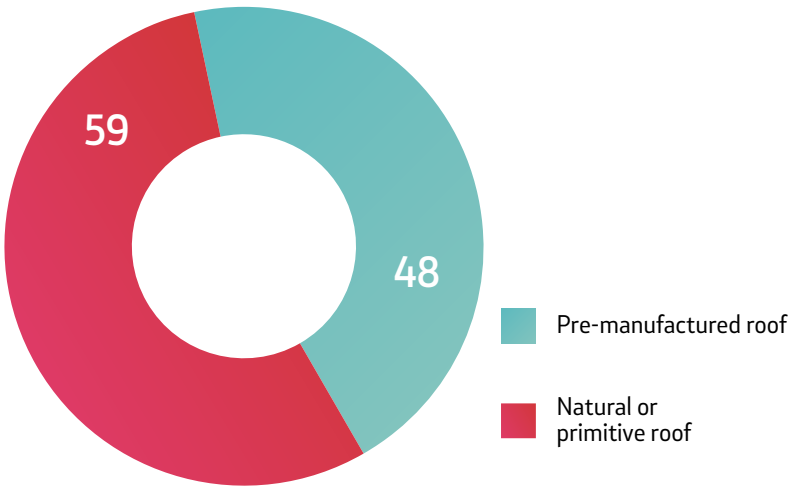


CHART no. 15: Share of acute respiratory diseases reported by Roma who live in housing units with roof made of natural and primitive material versus Roma who live in housing units with pre-manufactured roof

Infrastructure conditions and construction methods lead to 40% of Roma household members suffering from asthma as result of exposure to humidity and mildew in their home. Number of households members who suffer from asthma as result of exposure to humidity and mildew at their home is four times higher compared to the number of respondents who suffer from asthma, but live in homes free of humidity and mildew.

III.3.5 OCCUPATIONAL RISKS

According to survey data, Roma exposed to extreme high outdoor temperatures at part of their job are by 5% more likely to suffer from chronic diseases compared to those who are not exposed to high outdoor temperature when performing their job (Chart 16).

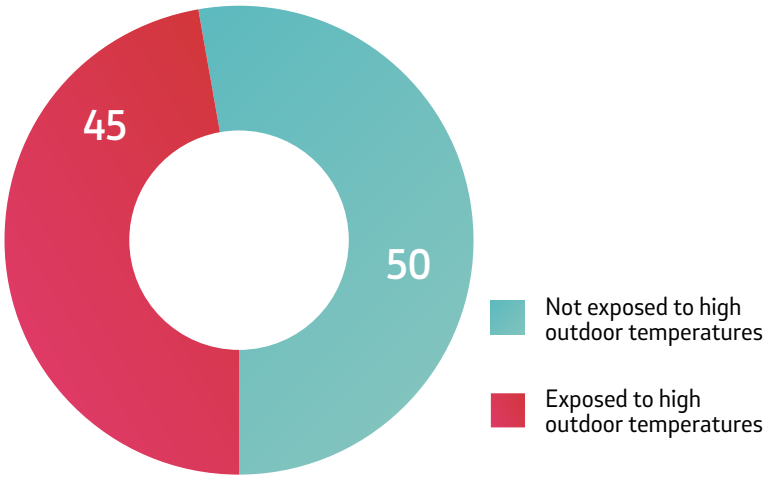


CHART no. 16: Share of reported chronic diseases among Roma who are exposed to high outdoor temperatures versus Roma who are not exposed to high outdoor temperatures when performing their job

Half of Roma who are exposed to smoke when performing their job reported acute respiratory diseases in the last months. However, the same share of responses is observed among Roma who are not exposed to smoke at their work (Chart 17).

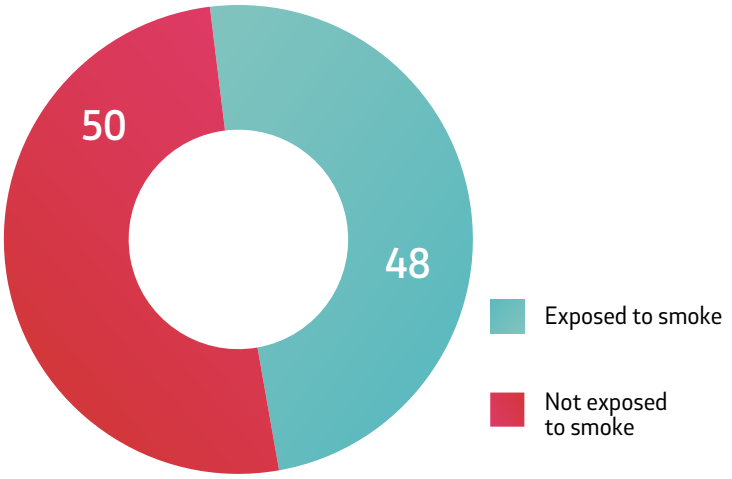


CHART no. 17: Correlation between exposure to smoke at the workplace and occurrence of acute respiratory diseases among Roma

Roma exposed to direct contact with waste and waste water when performing their job are twice as more likely to suffer from gastrointestinal infectious diseases (43% of Roma exposed to direct with waste and waste water reported such disease) compared to those who do not have any contact with waste and waste water (24% of this group reported gastrointestinal diseases). Exposure to occupational risks plays a significant role in human health, especially having in mind the type of work performed by poor Roma populations, which puts them in direct contact with waste and waste water.

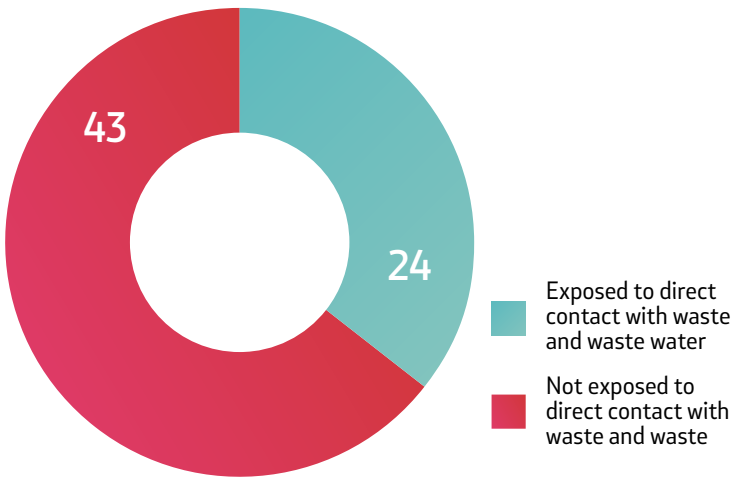


CHART no. 18: Share of gastrointestinal diseases reported by Roma who are exposed versus Roma who are not exposed to direct contact with waste and waste water at their workplace

IV. SURVEY RESULTS PER SETTLEMENT

IV.1. CITY OF SKOPJE
PARTS OF THE MUNICIPALITY SHUTO ORIZARI

SECTOR COVERAGE OF THE RESEARCH:

URBAN COMMUNITY: SHUTO ORIZARI
ROMA SETTLEMENTS:
→ HANGARNI BARAKI
→ NOV ZHIVOT.

Based on previously defined instruments, the survey was conducted by the Association for Roma Community Development and Promotion ROMANO CHACHIPE from Skopje and covered:

→ **675 respondents** - members of households in poor, informal Roma settlements within the urban community *Shuto Orizari*, all members of the Roma community. Among them, 438 respondents (65%) live in the settlement *Hangarni Baraki*, while 237 respondents (35%) live in the settlement *Nov Zhivot*;

→ **municipal administration employees** who completed the questionnaire for the Municipality of Shuto Orizari;

→ **16 focus group participants** - representatives from the sector on environment and communal activities at the Municipality of Shuto Orizari and the sector on environment at the City of Skopje, local NGOs profiled in environmental protection and protection of Roma rights, local residents and 2 external experts.

IV.1.1. BASIC DATA ABOUT ROMA SETTLEMENTS

1. LEGAL STATUS OF THE SETTLEMENTS

According to data provided by the municipal administration about the **legal status of Roma settlements** covered by the survey *(existence of urban/spatial plans for the location):*

→ only a portion of Roma settlements are covered with detailed urban plans;
→ land designation in the urban plan is “purpose compatible with housing”;
→ type of urban greenery in the settlements:

- *park* - green area exceeding 1ha, used for recreation, walking, entertainment and play;
- *green square* - green area not exceeding 1ha, used for pedestrian transit, short recreation and play;
- *line of trees* - green formation lining traffic roads.

2. SAFETY OF SETTLEMENT LOCATION IN RESPECT TO ENVIRONMENTAL HEALTH RISKS

According to data provided by the municipal administration about **exposure to hazardous environmental conditions and related health risks**:

➜ the settlements ARE WITHIN AN AREA susceptible to:

- earthquakes;

➜ the settlements ARE IN VICINITY OF **hazardous environmental conditions**:

- substandard landfills for solid communal waste;
- dumpsite for communal waste and construction debris not collected by relevant communal enterprises;

➜ the settlements ARE EXPOSED to **hazardous housing conditions**:

- housing near significant soil pollution source;
- housing in area without infrastructure for safe drinking water, waste water discharge, asphalted roads, waste collection, etc. (partially);
- space heating by burning solid waste;
- work on rubbish dumpsites, with garbage containers, etc. without adequate protection equipment (partially).

Survey results on **hazardous environmental conditions** show that:

➜ 84% of respondents said that settlements ARE IN VICINITY of "substandard landfill for solid communal waste";

➜ 75% of respondents said that settlements ARE IN VICINITY of "dumpsites for disposal of communal waste and construction debris not collected by relevant communal enterprises";

➜ 20% of respondents said that settlements ARE IN VICINITY of "contaminated industrial locations - hot environmental spots";

➜ 6.3% of respondents said that settlements ARE NOT IN VICINITY of hazardous environmental conditions.

As regards **activities that contribute to ongoing air pollution,** 17% of respondents referred to "industrial facility or activities (open-air burning of tires and electrical cables)" in vicinity of Roma settlements (at distance of 2 kilometres).

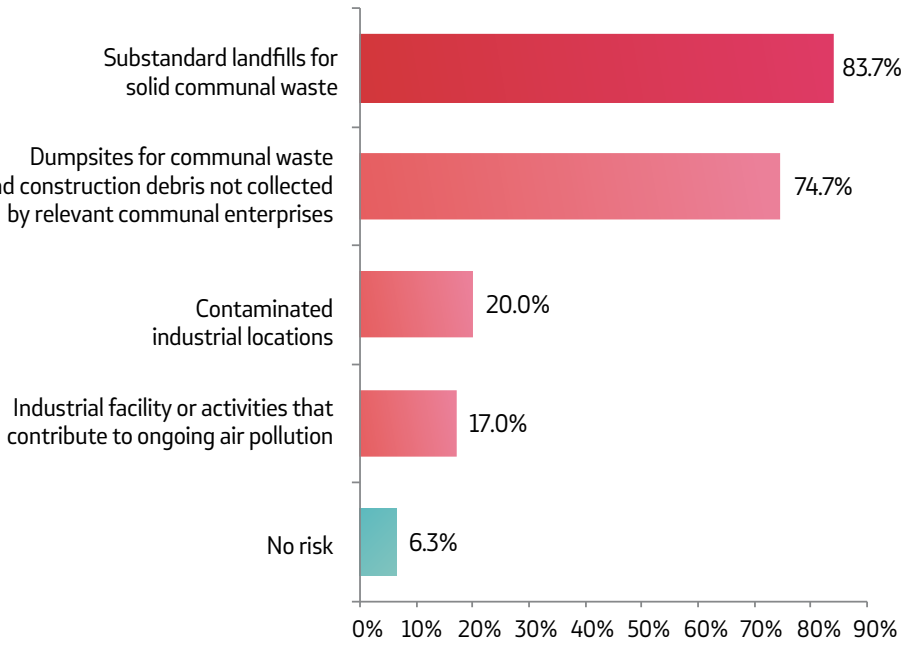


CHART no. 19: Hazardous environmental conditions (per type) in vicinity of Roma settlements (survey results)

IV.1.2. BASIC CHARACTERISTICS OF ROMA HOUSEHOLDS COVERED BY THE SURVEY

1. TYPE OF HOUSEHOLDS IN ROMA SETTLEMENTS

As regards the **type of households in Roma settlements**, survey results show that:

➔ 93.6% are "family households" (comprised of one, two or more families), of which 85.9% are "single-family households", while only 7.7% are households with "two or more families";

➔ 6.4% are "non-family households" (comprised of one, two or more non-related persons), of which 90.7% are "single-person households", while 9.3% are non-family households comprised of "two or more non-related persons".

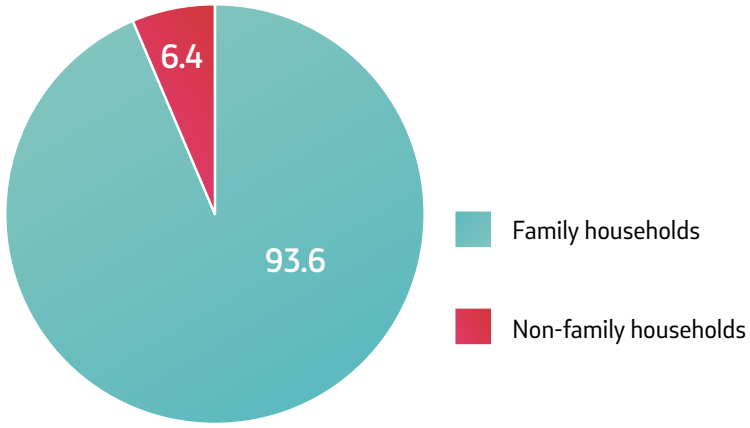


CHART no. 20: Types of households in Roma settlements

2. DURATION OF RESIDENCE IN ROMA SETTLEMENTS

According to survey results on duration of residence in the settlements:

➔ three quarters (76.6%) of household members "have always lived here, from birth";

➔ almost one quarter (23.4%) "have moved to the settlement", of which 90% have moved from "another settlement in Macedonia", while 10% have moved from "another country".

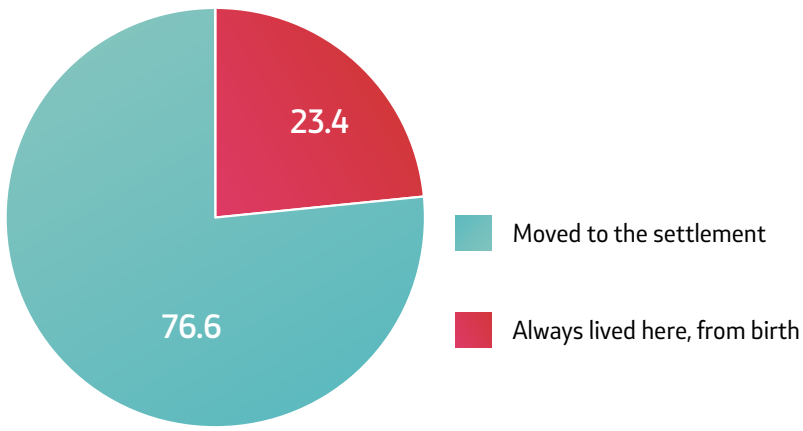


CHART no. 21: Време на континуирано живеење во населбите

3. PRESENT HEALTH STATUS OF HOUSEHOLD MEMBERS

Asked to assess **their own and the health of household members**, 55.7% of respondents reported "good health", 32.4% indicated "neither good nor poor health", while 11.6% reported "poor health".

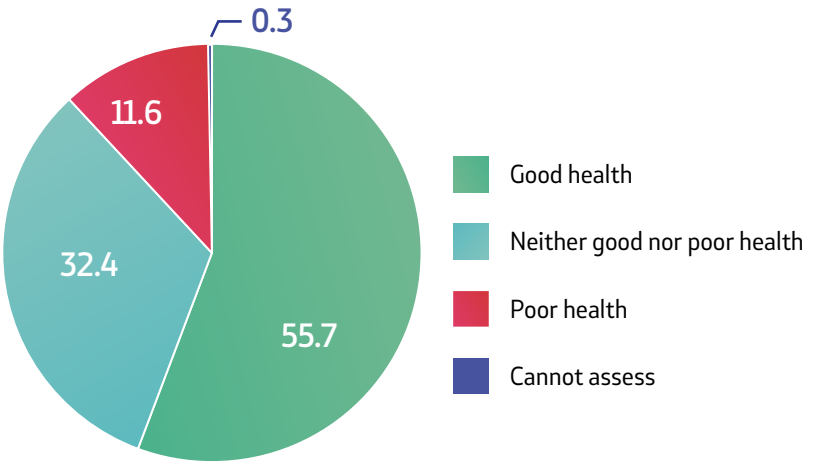


CHART no. 22: Assessment of present health status among household members

Most frequently reported **chronic diseases among household members** include "hypertension" as indicated by 39.01% respondents, "diabetes" – 34.9%, "heart disease" - 17.4%; "asthma" - 5.3%, "heart attack" - 4.5%, and "stroke" - 3.7%. Much lower shares of respondents referred to "chronic kidney disease" (2.8%), "chronic pulmonary disease" (2.4%), "chronic liver disease" (1.2%) and "carcinoma" (0.4%).

43.8% of respondents did not report any chronic diseases among household members.

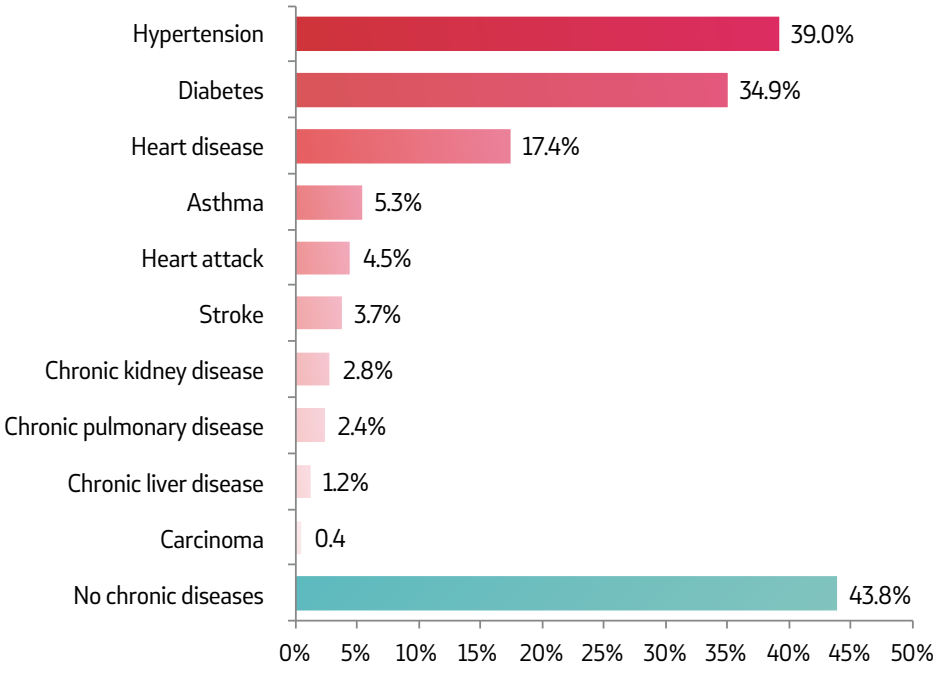


CHART no. 23: Share of reported chronic health conditions/diseases among household members

59.4% of respondents said that, in the last 2 months, members of their household "have not suffered" from health conditions such as **cold, cough, running nose**, sore throat, difficult breathing, bronchitis, pneumonitis, etc. On the other hand, 23% indicated "several instances" of these health conditions among their household members in the last 2 months, while 16.9%

reported "one instance". 0.7% of all respondents were unable to assess whether and how many times members of their households suffered from these health conditions.

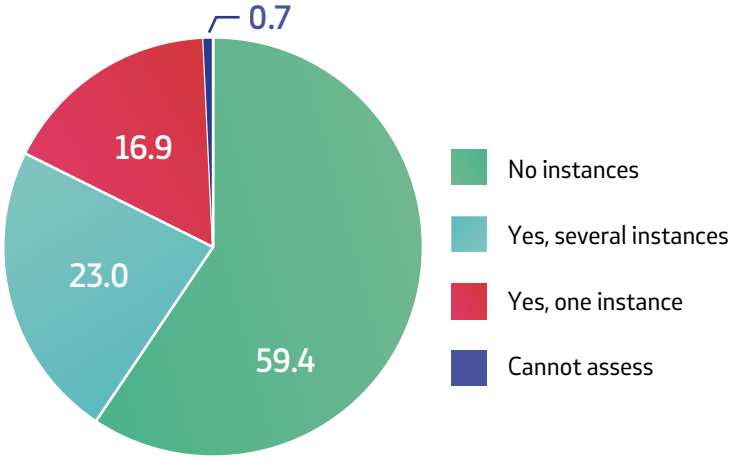


CHART no. 24: Share of reported health conditions such as cold, cough, running nose, sore throat, difficult breathing, bronchitis, pneumonitis, etc. in the last 2 months

67.4% of respondents said that, in the last 2 months, members of their household "have not suffered" from gastrointestinal diseases (vomiting, diarrhoea, stomach pain, etc.). On the other hand, 13.2% reported "one instance" of these diseases among household members, while 18.4% reported "several instances". 7 respondents were unable to ascertain whether and how many times household members suffered from these diseases and did not answer this question.

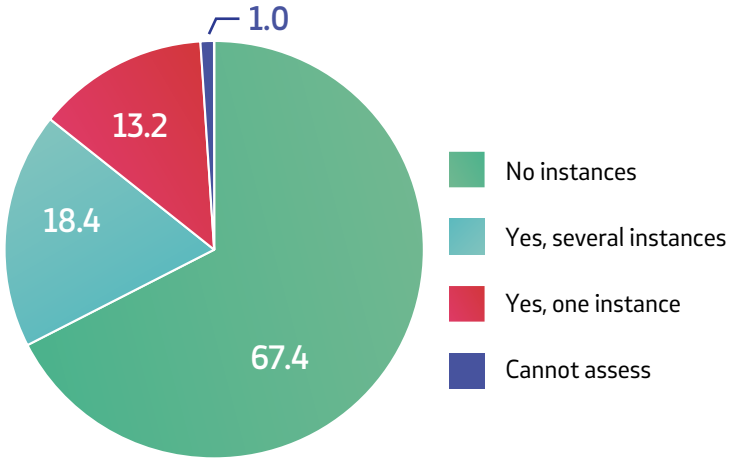


CHART no. 25: Share of reported gastrointestinal diseases (vomiting, diarrhoea, stomach pain, etc.) in the last 2 months

IV.1.3. SPECIFIC ENVIRONMENTAL RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

1. HEALTH RISKS CAUSED BY THE CONSTRUCTION QUALITY OF HOUSING UNITS

a) Type and ownership of housing units where households are accommodated

According to the **type of housing units**, 94% of households live in "stand-alone house with construction permit", around 4% of households live in "stand-alone house without construction permit", while 0.7% live in "informal housing unit without construction permit".

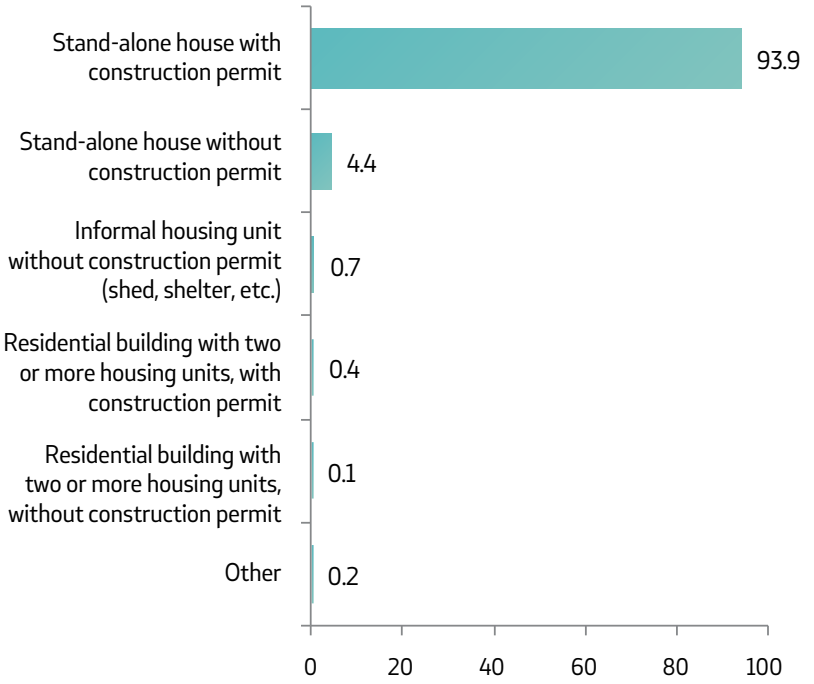


CHART no. 26: Type of housing units where households are accommodated

According to the **number of rooms per housing unit**, around 9% of households live in "flatlet or housing unit with one room", one third (35%) live in housing unit with "two or two-and-half rooms" and the same share of them (35%) live in housing unit with "three or three-and-half rooms", while 21% of households live in housing unit with "four or more rooms".

As regards **ownership of housing units**, 96.6% of household live in household units "owned by family member". Around 3% live in "rented housing unit".

80.3% of respondents indicated that "all household members" hold **valid ID card with current place and address of residence**", 8% reported "one household member" with valid ID card, while 12% said "some household members" hold valid personal identification document. All members of 1 household (0.1%) do not hold valid ID card with current place and address of current residence.

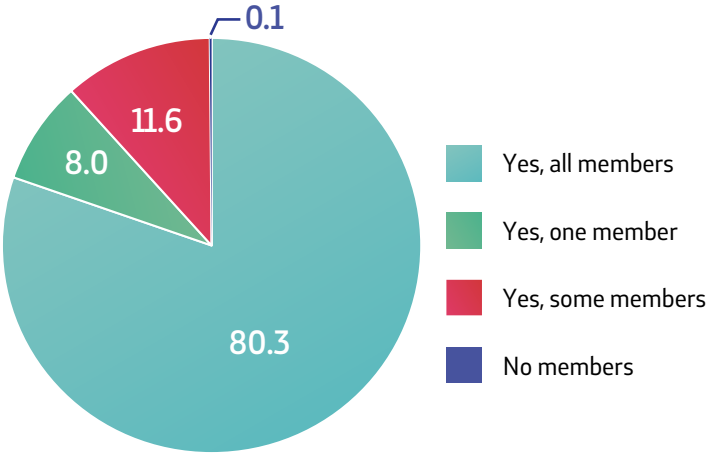


CHART no. 27: Breakdown of households according to members that hold valid ID cards with current place and address of residence

Analysis of cross-referenced data shows that higher share of residents in the settlement *Nov Zhivot* reported one household member (16%) or some household members (15%) as holders of valid ID cards with current place and address of residence.

b) Construction durability and safety of housing units

As regards the **type of external walls**, survey results show that:

→ 97% of housing units have "**pre-manufactured walls**", of which 53% are made of "bricks or brick blocks", 29% are made or "cement"; 16% are made of "cement blocks", 0.6% are made of "limestone" and 0.2% are made of "covered mudbricks";

→ 2% of housing units have "**natural walls**", half of which are made of "mud" and the other half are made of "reed";

→ 0.9% of housing units have "**primitive walls**", i.e. 3 houses are made of "clay", 2 are made of "plywood" and 1 is made of "recycled wood".

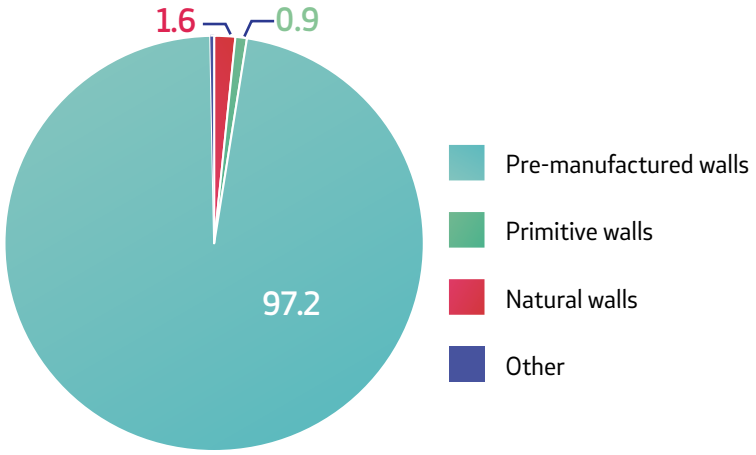


CHART no. 28: Type of external walls in housing units

As regards the **type of roofs**, survey results show that:

→ 97% of housing units have "pre-manufactured roof", most of which (83%) are made of "roofing tiles", 2% - "metal/tin", 2% - "shingle", 8% - "cement", while 1% of housing units have roof made of "wood";

→ 1.8% of housing units have "natural roof", mainly made of grass;

→ 0.9% of housing units have "primitive roof" exclusively made of "planks".

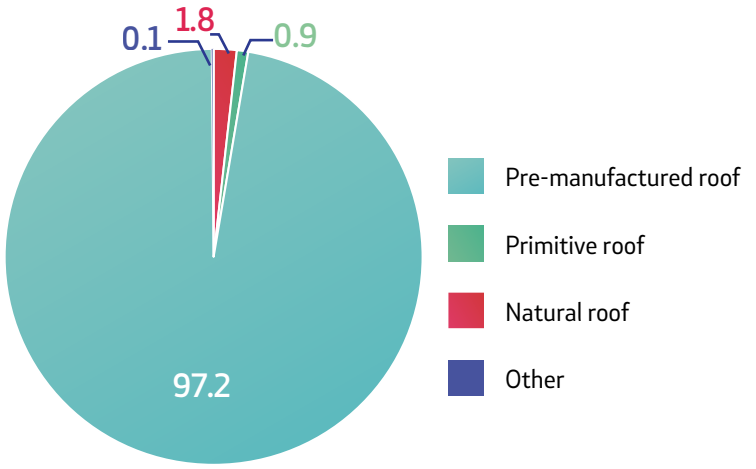


CHART no. 29: Type of roofs in housing units

As regards the **type of floors,** survey results show that:

→ 95% of housing units have "pre-manufactured floor", of which: one third (33%) are "laminate", one fifth are made of "ceramic tiles" and another one fifth are made of "cement", while other responses referred to "parquet" or "coated wood" (17%) and "carpet" (7%);

→ 3% of housing units have "natural floor", most of which are made of "earth or sand" (95 %) and 5% are made of "garbage material";

→ only 2.3% of housing units have "primitive floor" made of "planks".

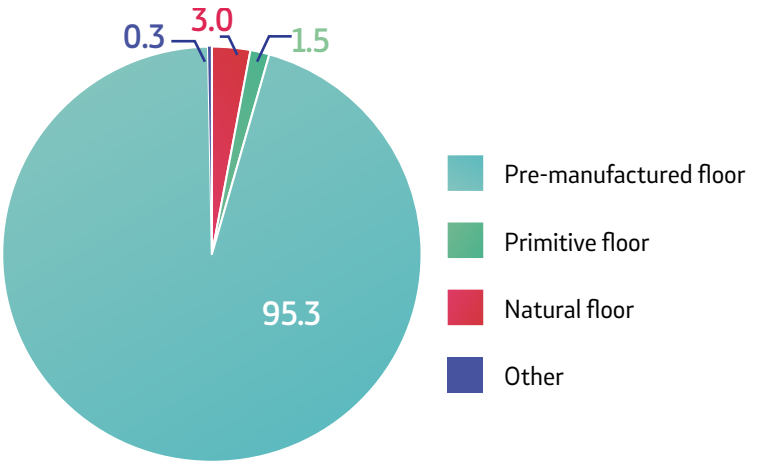


CHART no. 30: Type of floors in housing units

2. HEALTH RISKS CAUSED BY LACK OF BASIC COMMUNAL SERVICES

a) Type of communal services and infrastructure provided in the settlement

Most frequently indicated **communal services and infrastructure** provided in the settlement include: "supply of drinking water - water supply network" (99%), "electricity supply" (88%), "waste water discharge - sewage" (70%), "street lighting" (54%) and "waste collection" (46%).

Less than one fifth of respondents reported provision of other communal services in their settlement such as: "maintenance of public hygiene" (18%), "heating energy" (15%), "organized public transport" (16%) and "maintenance of parks, greeneries and recreational areas" (15%). Concerns are raised with responses about communal services related to construction and maintenance of "atmospheric water drains" (8%), "local roads" (5%), "public parking space" (1%) and "traffic signs" (1%).

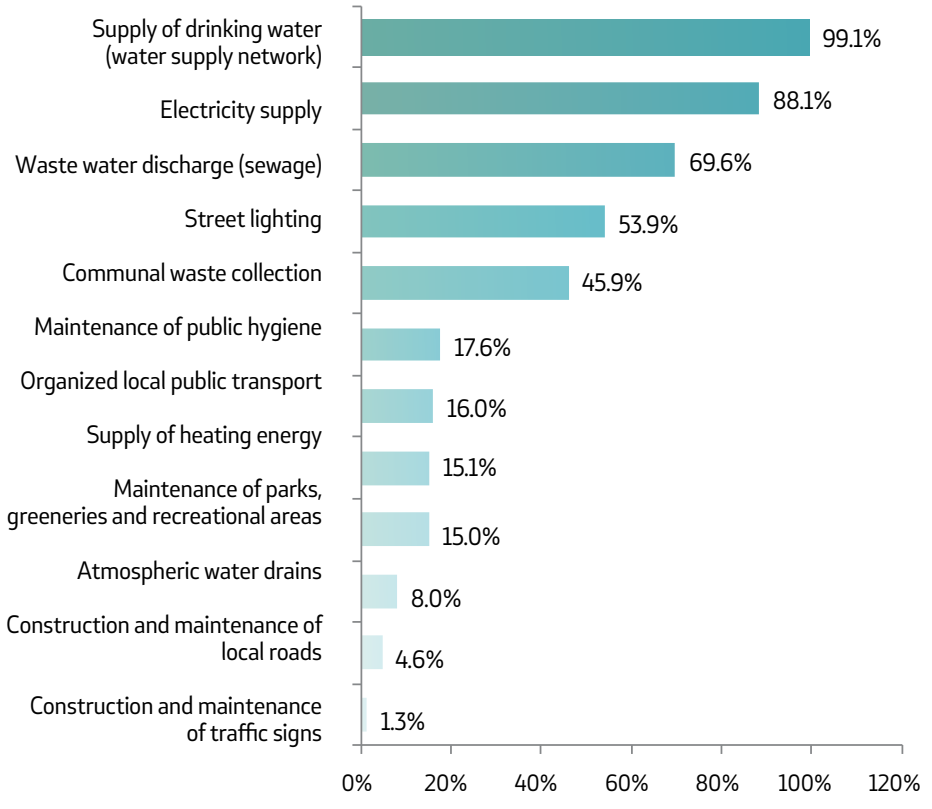


CHART no. 31: Communal services and infrastructure provided in the settlements

Majority of respondents (81%) indicated **disposal of solid waste in** "household bins that are collected by communal hygiene services", while 18% of them reported that solid waste is disposed into "garbage containers". Around 2% of households dispose of their waste at "illegal landfills".

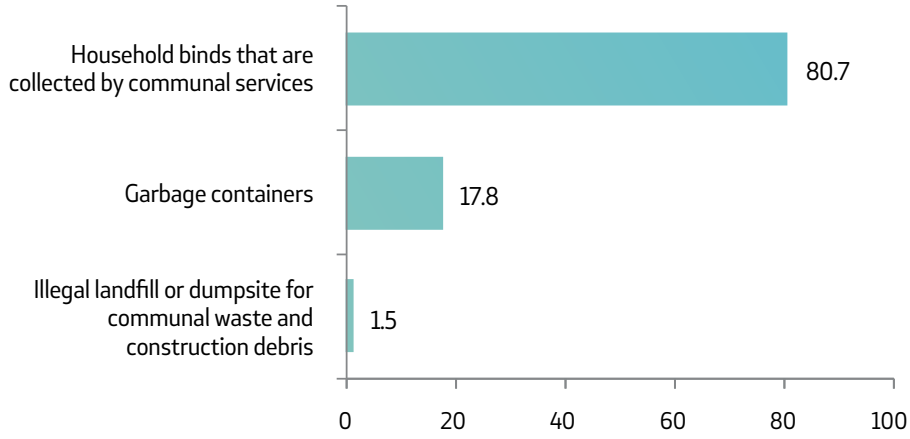


CHART no. 32: Places for disposal of household solid waste

b) Safety of drinking water and sanitary system

99.1% of households indicated "water supply network" as the **main source of drinking water.** Among them, 98% have "indoor water pipes" while 2% have "outdoor water pipes - in the yard or land plot". 1 household (0.1%) is supplied with drinking water from "protected well", while 5 households (0.7%) use "bottled water". 52.4% of households reported "at least one" **interruption of water supply** in the last month, of which 84% identified the reason thereof as "unavailability of water from the main water source", 5% indicated "lack of access to the main water source", 1% reported that "water is expensive", while 6% indicated "low pipe pressure" as the reason for water supply interruption. Around 4% of households "do not know the reason" for water supply interruption.

The remaining 47.6% of households reported "sufficient supply of drinking water" in the last month.

Analysis of cross-referenced data shows that higher share of residents in the settlement *Hangarni Baraki* reported at least one instance of interrupted supply of drinking water in the last month (57%) compared to residents in the settlement *Nov Zhivot* (44%).

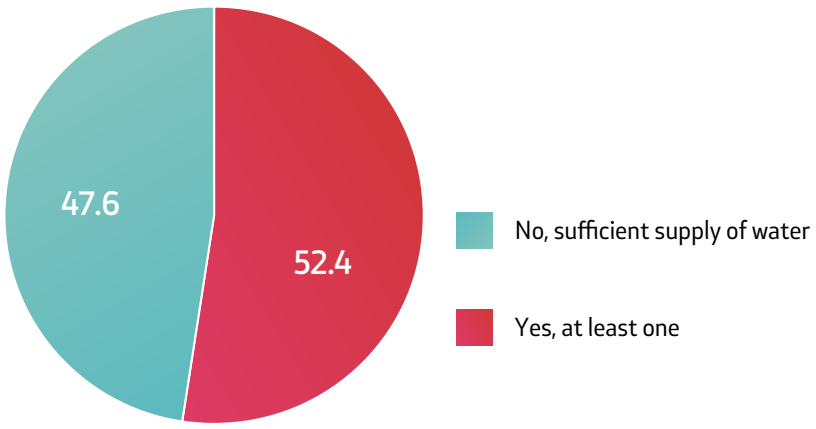


CHART no. 33: Interrupted supply of drinking water in the last month

For 99.9% of households, "water supply network" is the main source of water for **cooking and washing hands**, most of which have "indoor water pipes" (98%) and very low share of the, have "outdoor water pipes - in the yard" (2%). 1 household uses "the neighbour's water supply pipes" and 1 household uses water from "public fountains/pipe extensions".

In 97% of cases, household members **wash hands** using "indoor lavatory", while 2% use "outdoor lavatory - in the yard or land plot". 0.7% of household reported use of "portable lavatory (bucket, pitcher, etc.)" for washing hands, while 1 household indicated "no lavatory in the house or in the yard".

74% of households use "soap and detergent" for washing hands, while almost one quarter of them (24%) use "soap" and 3% use "detergent".

As regards the **type of toilets**, survey results show that:

→ 99% of housing units have "flushing toilet", most often connected to "sewage pipes" for waste water discharge (99.5%);

→ only 9 housing units (1%) have "non-flushing toilet", of which 6 households have "outhouse toilet/uncovered/open septic tank", 1 household has "ventilated outhouse toilet with septic tank", 3 households have "covered outhouse toilet", and 1 household has "outhouse toilet with composting".

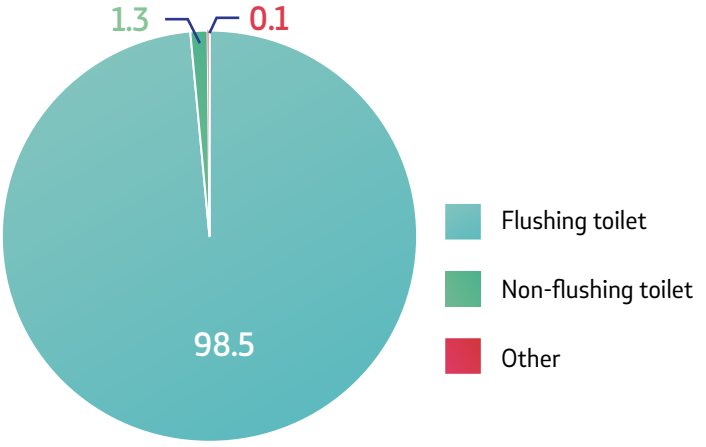


CHART no. 34: Type of toilets in housing units

As regards **location of toilets**, 93.2% of households have "indoor toilet", 6.7% have "outdoor toilet - in the yard", and 1 household indicated "another place".

Majority of households (93%) "**do not share**" the toilet with members of other households, while 7% reported "shared toilet" with other households, of which 99% share the toilet with "known number of households" and 1% use "facilities open to the general public".

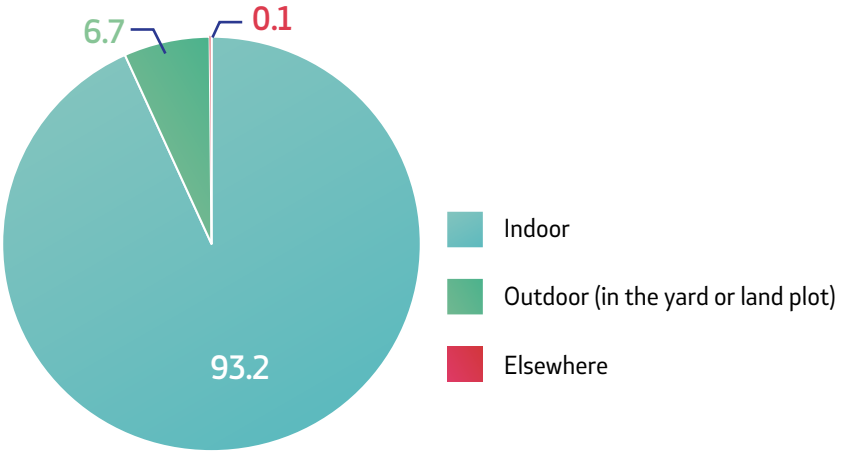


CHART no. 35: Location of toiles in housing units

55 from 189 households with **septic tanks for waste water discharge** "have cleaned the septic tank in the last 5 years", 30 households "have cleaned the septic tank more than 5 years ago", 15 households reported they "have not cleaned the septic tank", while 89 households were unable to answer, i.e. do not know when the septic tank was last cleaned.

As regards the cleaning method of **septic tanks**:

- ➔ 45% of households indicated that the septic tank was cleaned by "providers of such services", whereby 61% indicated "no knowledge of the final disposal site", 3 of 10 respondents said that the septic tank content was disposed at "waste water treatment plant", and 1 of 10 respondents said that the septic tank content "was buried underground";
- ➔ 36% of households reported that the septic tank "was cleaned by household members";
- ➔ 19% of household indicated "other method".

c) Energy use in households

Vast majority of households, i.e. 667 from total of 675 households (98.8%) **use electricity** through "grid connection", while 2 households (0.3%) use electricity "outside the grid". A total of 6 households (0.9%) "do not have electricity".

95% of households "have chimney" in their housing unit, while 5% "do not have" chimney.

Cooking devices used by households include: "electrical stove" (93%), "gas stove" (6%) and "natural gas stove" (0.6%). Less than 0.5% of households indicated "another type of stove".

Types of fuel or energy source used by cooking stoves include: "electricity" (59.4%), "wood" (12.6%), "petrol/diesel" (5.5%), "wood charcoal" (4.3%), "waste/plastic/tires" (0.9%), "animal manure/waste" (0.9%), "processed biomass (pellets) or wood shavings" (0.1%) and "liquified natural gas" (0.7%).

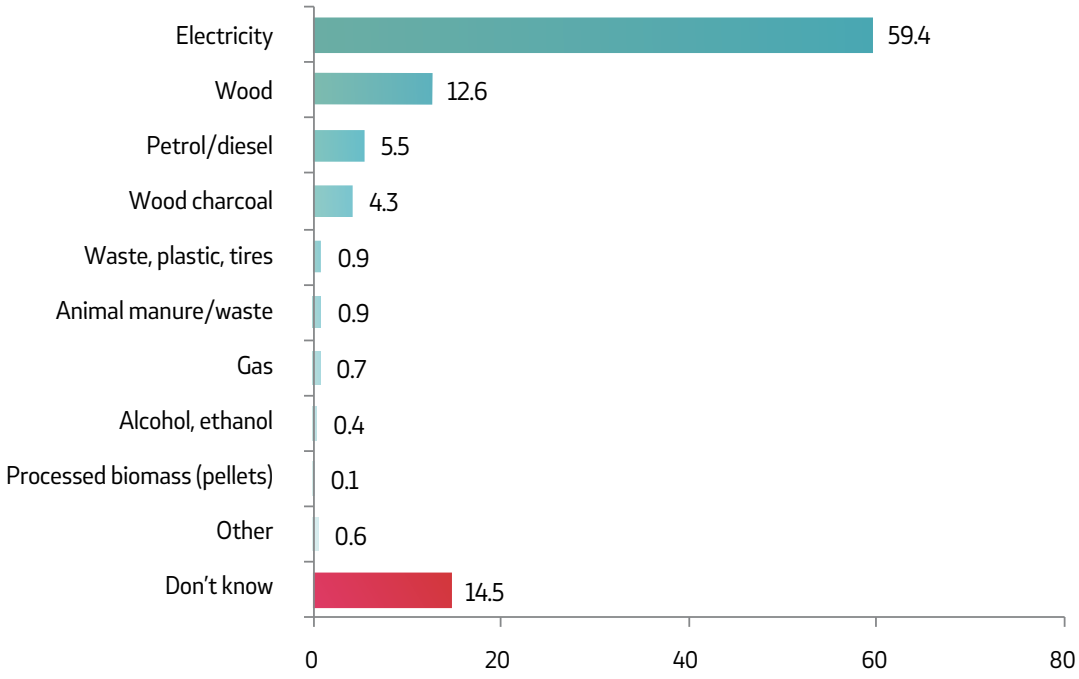


CHART no. 36: Energy source used for cooking stoves

As regards **common place for cooking**, 93.2% of households usually cook in the main house where they live, of which 22% indicated "separate room for cooking", while 73% indicated "inside the house, but no separate room". Only 0.4% of households cook in "separate facility" and 2.2% cook "outside - on the porch or covered anteroom". Another 2.2% of households cook "outside - in the open".

For the purpose of **space heating**, 26% of households use "air-conditioner", and the same share of them reported "traditional furnace", 22% - "factory-made furnace", 14% - "traditional furnace", 4% - "thermal heater", 2.4% - "electric panel", 3.6% - "factory-made heater", and only 1% of households have "central heating".

Energy sources used by space heaters include: "electricity" (50.1%), "wood" (43.6%), "processed biomass (pellets) or wood shavings" (1.9%), "wood charcoal" (1.5%), "liquified petroleum gas" (0.4%), "waste/plastic/tiers" (0.1%), "agriculture waste/ grass/ straw/ branches" (0.1%), "coal/lignite" (0.1%), "kerosene/paraffin" (0.1%), "petrol/diesel" (0.1%) and "alcohol/ethanol" (0.1%).

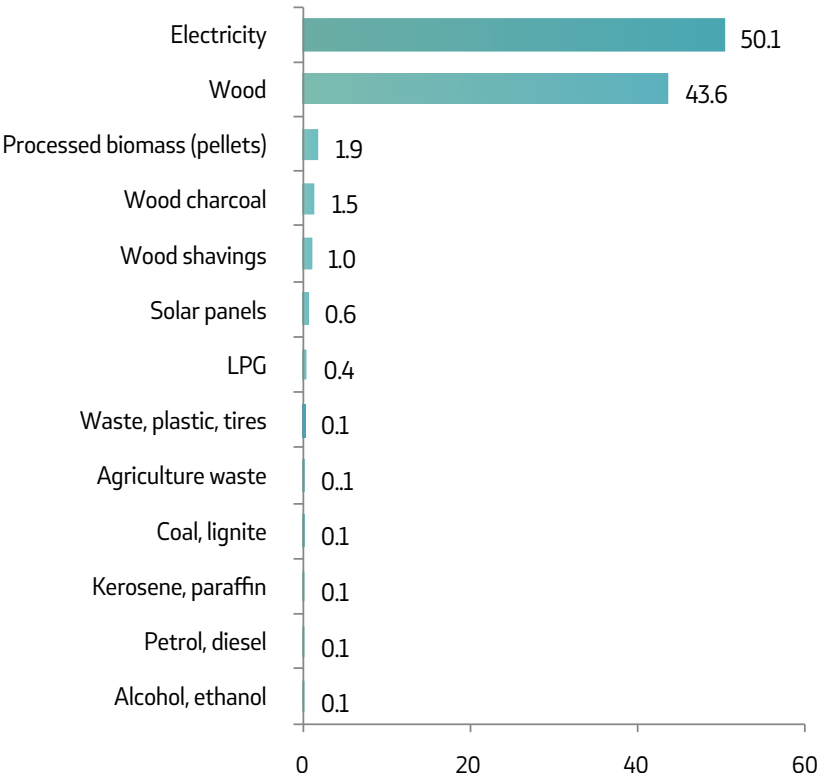


CHART no. 37: Energy source used for space heating in households

Around 47% of household "do not use" **cooling devices**. Among households that use cooling devices, 44% indicated "air-conditioner", while 9% indicated "fan (floor or ceiling-mounted).

Analysis of cross-referenced data shows that higher share of households in the settlement *Nov Zhivot* do not have cooling devices compared to households in the settlement *Hangarni Baraki.*

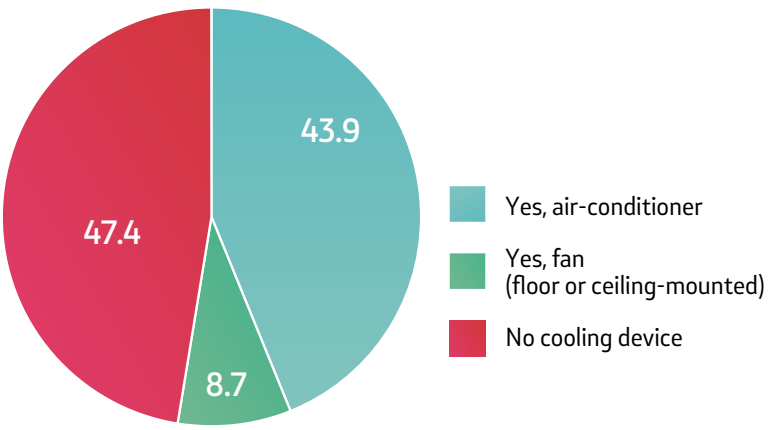


CHART no. 38: Cooling devices used by households

As **regards night lights**, 96.4% of households use "electricity", while remaining 2.8% use "wood".

3. OTHER HEALTH RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

51.7% of households reported "no smoking" **inside the house**, 25.5% of households indicated "at least one person smoking inside the house", while 22.8% indicated that household members "sometimes" smoke cigarettes inside the house.

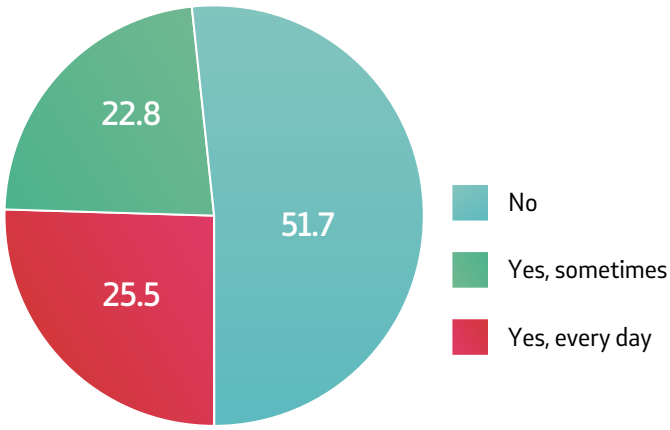


CHART no. 39: Cigarette smoking inside the house by at least one household member

53.6% of households reported "no humidity or visible mildew" on **internal walls in their house.** On the other hand, 38.2% of households indicated "humidity" on one or more internal walls, while 8.1% indicated "humidity and visible mildew".

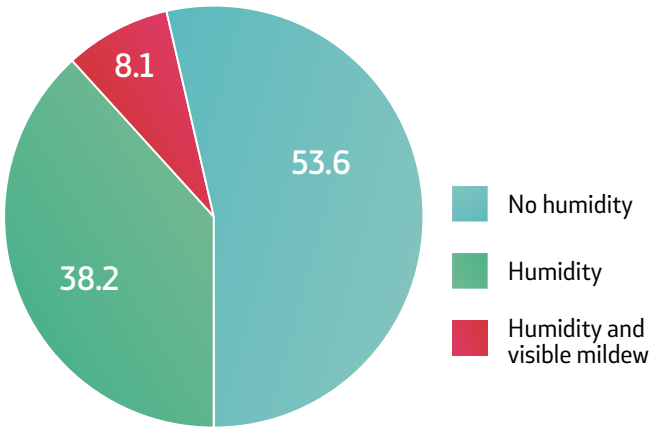


CHART no. 40: Humidity and visible mildew on internal walls of housing units

As regards **exposure to health risks when performing their current job**, 34% from the total of 675 respondents reported "direct contact with waste", 34% are exposed to "smoke" and 19% indicated "direct contact with waste water – sewage".

Outdoor work due to the nature of their job in hot summer days when temperatures exceed 37°C was reported by 40% of respondents, of which 17% are "always" exposed to high outdoor temperatures, while 23% are "sometimes" exposed to high outdoor temperatures.

60% of respondents reported they are "never" exposed to high outdoor temperatures due to the nature of their job.

IV.2. CITY OF KUMANOVO

SECTOR COVERAGE OF THE RESEARCH:
URBAN COMMUNITY: PERO CHICHO **ROMA SETTLEMENT** → PERO CHICHO - BARAKI **URBAN COMMUNITY:** SREDOREK **PROMA SETTLEMENTS:** → BAVCHI → SREDOREK.
Based on previously defined instruments, the survey was conducted by the Humanitarian Association "Majka" from Kumanovo and covered: → **496 respondents** - members of households in poor, informal Roma settlements in the City of Kumanovo, all members of the Roma community. The highest share of them (39%) live in the settlement Sredorek, 29% live in the settlement Pero Chicho - Baraki, 16% in the settlement Bavchi and 15% in the urban part of Kumanovo; → **municipal administration employees** who completed the questionnaire for the Municipality of Kumanovo; → **14 focus group participants** - representatives from urban communities, the General Hospital in Kumanovo, Public Health Centre in Kumanovo, local NGOs profiled in environmental protection and protection of Roma rights, sector on environmental protection at the municipal administration and 2 external experts.

IV.2.1. BASIC DATA ABOUT ROMA SETTLEMENTS

1.LEGAL STATUS OF THE SETTLEMENTS

According to data provided by the municipal administration about the legal status of Roma settlements covered by the survey (existence of urban/spatial plans for the location):

→ **PERO CHICHO - BARAKI:**
- entire territory of the settlement is covered by detailed urban plan;
- entire area of the settlement is covered by the plan;
- land designation in the plan is "housing";
- there is no urban greenery;

→ **BAVCHI:**
- no general or detailed urban plan for the settlement;
- land designation is "other purpose (non-residential)";
- there is no urban greenery;

→ **SREDOREK:**
- only part of the settlement's territory is covered by general urban plan;
- land designation in the plan is "housing";
- there is no detailed urban plan for the settlement;
- there is no urban greenery.

2. SAFETY OF SETTLEMENT LOCATION IN RESPECT TO ENVIRONMENTAL HEALTH RISKS

According to data provided by the municipal administration about hazardous environmental conditions and related health risk, the situation per settlement is elaborated below:

PERO CHICHO - BARAKI:

→ the settlement IS NOT WITHIN AN AREA susceptible to **natural disasters**;

→ the settlement IS IN VICINITY OF **hazardous environmental conditions** (per type - substandard landfills and rubbish dumpsites, abandoned industrial facilities, mines, etc.):

- substandard landfills for solid communal waste;
- dumpsites for disposal of communal waste and construction debris not collected by relevant communal enterprises;

→ the settlement IS EXPOSED to **hazardous housing conditions**:

- housing in area characterized by significantly deteriorated quality of ambiance air, especially high presence of solid particles (PM10 and PM2.5) in winter season;
- housing near significant soil pollution source;
- housing near significant noise and vibrations as result of business and other activities, including noise emitted by transport means: road, railway and air traffic and industrial sites, causing discomfort and disturbance (vicinity of railway track that is undergoing renovation);
- space heating by burning solid waste;
- work on dumpsites, with garbage containers, etc. without adequate protection.

BAVCHI:

→ the settlement IS WITHIN AN AREA susceptible to **natural disasters**:

- river flooding;
- heavy rains;

→ the settlement IS IN VICINITY OF **hazardous environmental conditions** (per type - substandard landfills and rubbish dumpsites, abandoned industrial facilities, mines, etc.):

- substandard landfills for solid communal waste;
- dumpsites for disposal of communal waste and construction debris not collected by relevant communal enterprises;

→ the settlement IS EXPOSED to **hazardous housing conditions**:

- housing in area characterized by significantly deteriorated ambiance air, especially high presence of solid particles (PM10 and PM2.5) in winter season;
- housing near significant soil pollution source;
- housing in area that lacks infrastructure for safe drinking water, waste water drainage, asphalted roads, waste collection, etc.;
- housing near significant noise and vibrations as result of business and other activities, including noise emitted by transport means: road, railway and air traffic and industrial sites, causing discomfort and disturbance (vicinity of railway track that is undergoing reconstruction);
- space heating by burning solid waste;
- work on dumpsites, with garbage containers, etc., without adequate protection.

SREDOREK:

➜ the settlement IS WITHIN AN AREA susceptible to **natural disasters**:
- river flooding;
- heavy rains;

➜ the settlement IS IN VICINITY OF **hazardous environmental conditions** (per type - substandard landfills and rubbish dumpsites, abandoned industrial facilities, mines, etc.):
- substandard landfills for solid communal waste;

➜ the settlement IS EXPOSED to **hazardous housing conditions**:
- housing in area characterized by significantly deteriorated quality of ambiance air, especially high presence of solid particles (PM10 and PM2.5) in winter season;
- housing near significant soil pollution source;
- space heating by burning solid waste;
- work at dumpsites, with garbage containers, etc., without adequate protection.

Survey results on **hazardous environmental conditions** show that:

➜ 43.3% of respondents said that settlements ARE IN VICINITY of "dumpsites for communal waste and construction debris not collected by relevant communal enterprises";

➜ 35.3% of respondents said that settlements ARE IN VICINITY of "substandard landfill for solid communal waste";

➜ 0.4% of respondents said that settlements ARE IN VICINITY of "contaminated industrial site – hot environmental spots";

➜ 34.7% of respondents said that settlements ARE NOT IN VICINITY of hazardous environmental conditions.

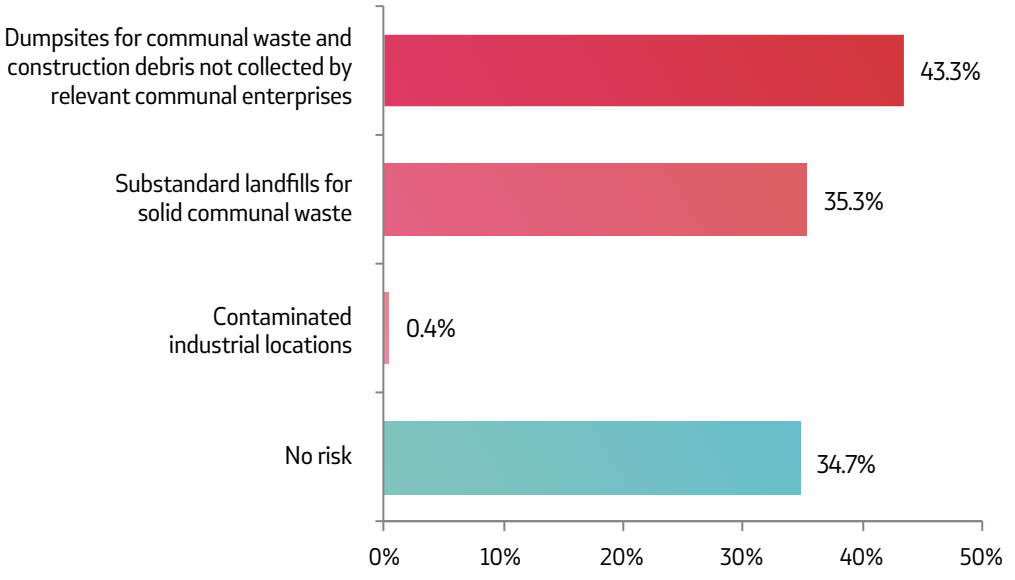


CHART no. 41: Hazardous environmental conditions (per type) in vicinity of settlements (survey results)

IV.2.2. BASIC CHARACTERISTICS OF ROMA HOUSEHOLDS COVERED BY THE SURVEY

1. TYPE OF HOUSEHOLDS IN ROMA SETTLEMENTS

As regards the type of households in Roma settlements, survey results show that:

➜ 96.6% are "family households" (comprised of one, two or more families), of which 80% are "single-family households", while 20% are "households with two or more families";

➜ 3.4% are "non-family households" (comprised of one, two or more non-related persons), of which 88% are "single-person households", while 12% are non-family households comprised of "two or more non-related persons".

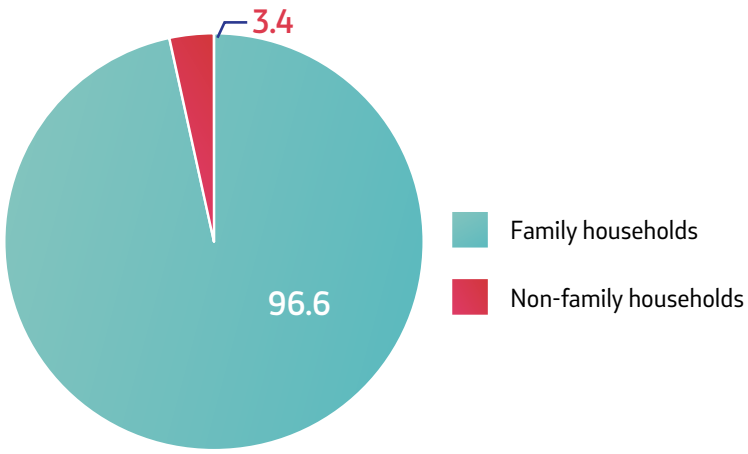


CHART no. 42: Type of households in Roma settlements

2. DURATION OF RESIDENCE IN ROMA SETTLEMENTS

According to survey results on duration of residence in the settlement:

➜ three-quarters (73%) of household members "have always lived here, from birth";

➜ almost one quarter (27 %) "have moved to the settlement", of which 93% have moved from "another settlement in Macedonia" and 7% have moved from "another country".

Analysis of cross-referenced data shows higher shares of residents that have moved to settlements *Pero Chicho - Baraki* (44%) and *Bavchi* (42%) compared to other settlements covered by this survey.

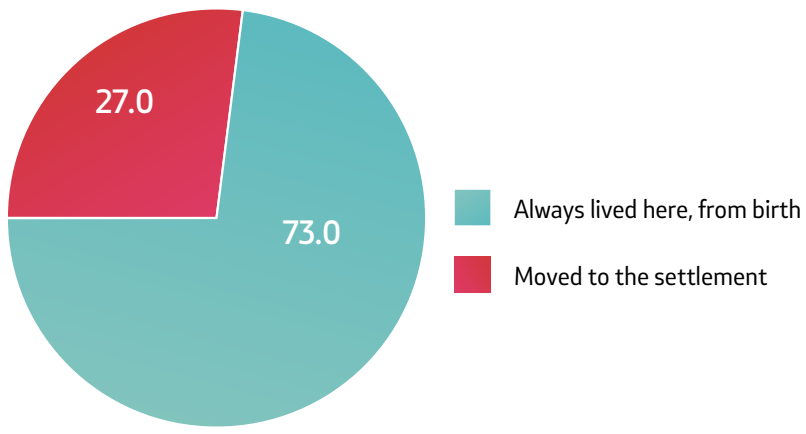


CHART no. 43: Duration of residence in Roma settlements

3. PRESENT HEALTH STATUS OF HOUSEHOLD MEMBERS

Asked to assess **their own and the health of household members**, 49% of respondents reported "good health", 38% indicated "neither good nor poor health", while 12% reported "poor health" at the time of surveying.

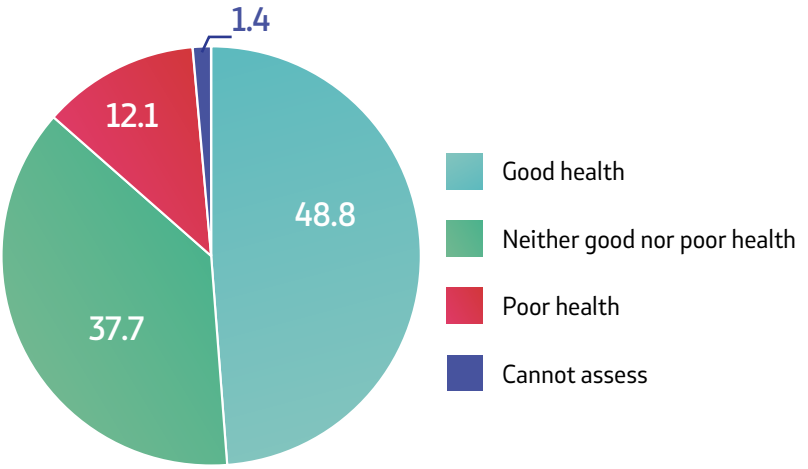


CHART no. 44: Assessment of present health status among household members

Most frequently reported **chronic diseases among household members** include: "hypertension" as indicated by 46.4% of respondents, "diabetes" - 23.7%, "heart disease" - 14.6%, "asthma" - 9.1%, and "heart attack" - 4.7%. Much lower shares of respondents referred to "chronic pulmonary disease" (2.3%), "stroke" (1.6%), "chronic kidney disease" (1.4%) and "carcinoma" (0.8%).

One third of respondents (37.5%) did not report any chronic diseases among household members.

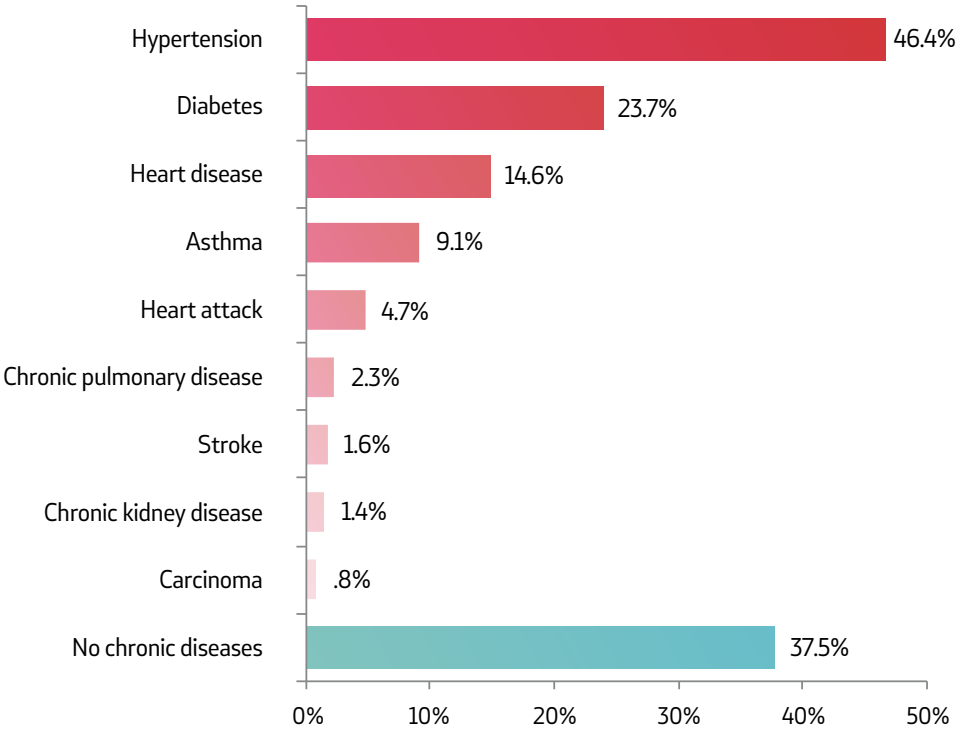


CHART no. 45: Share of reported chronic health conditions/diseases among household members

42.5% of respondents said that, in the last 2 months, members of their households "have not suffered" from health conditions such as **cold, cough, running nose**, sore throat, difficult breathing, bronchitis, pneumonitis, etc. On the other hand, 20.8% indicted "several instances" of these health conditions, while 34.5% reported "one instance".

2.2% of respondents were unable to assess whether and how many times members of their households suffered from these health conditions in the last 2 months.

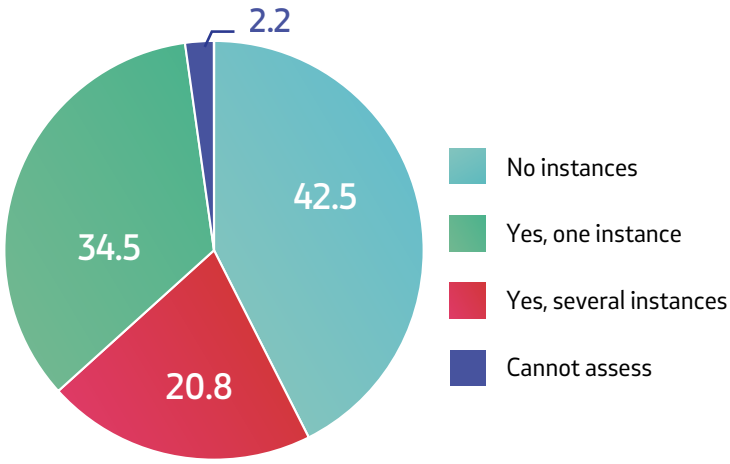


CHART no. 46: Share of reported health conditions such as cold, cough, running nose, sore throat, difficult breathing, bronchitis, pneumonitis, etc. in the last 2 months

56.7% of respondents said that, in the last 2 months, members of their households "have not suffered" from **gastrointestinal diseases (vomiting, diarrhoea**, stomach pain, etc.). On the other hand, 31.5% reported "one instance" and 9.3% reported "several instances" of these health conditions among household members. 2.6% of respondents were unable to assess whether and how many times members of their household suffered from these health conditions in the last 2 months.

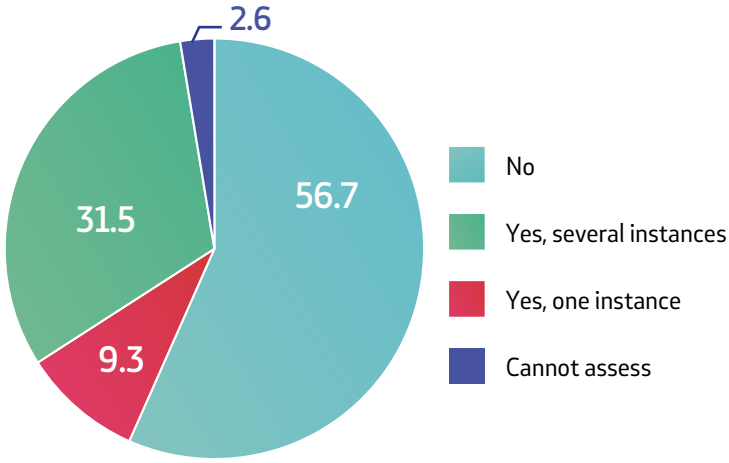


CHART no. 47: Share of reported gastrointestinal diseases (vomiting, diarrhoea, stomach pain, etc.) in the last 2 months

IV.2.3. SPECIFIC ENVIRONMENTAL RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

4. HEALTH RISKS CAUSED BY THE CONSTRUCTION QUALITY OF HOUSING UNITS

a) Type and ownership status of housing units where households are accommodated

According to the **type of housing units**, 60% of households live in "stand-alone house with construction permit", 38% live in "stand-alone house without construction permit", while 0.7% of households live in "informal housing unit without construction permit".

Analysis of cross-referenced data shows that significantly higher share of residents in the settlement Sredorek (87%) live in houses without construction permits compared to residents in other settlements.

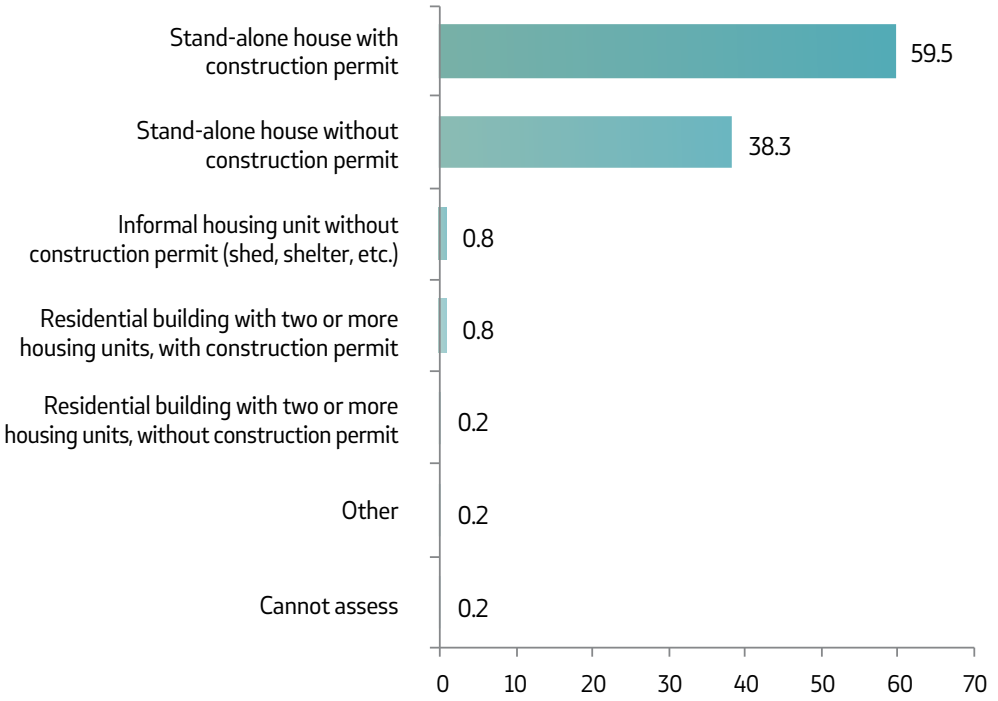


CHART no. 48: Type of housing units where households are accommodated

According to the **number of rooms per housing unit**, survey results show that:

- ➜ around 12% of households live in "flatlet or single-room housing unit";
- ➜ 52% of households live in housing unit with "two or two-and-half rooms";
- ➜ 23% of households live in housing unit with "three or three-and-half rooms";
- ➜ 12% of households live in housing unit with "four or more rooms".

As regards **ownership of housing units**, 95% of households live in housing units "owned by the respondent or another family member".

Around 4.4% of households live in "rented housing unit".

95% of respondents indicated that "all household members" hold **valid ID cards with current place and address of residence**, while 2% of households reported "one household member" with valid personal identification document and another 2% said that "some family members" have valid ID cards with current place and address of residence.

Households where **no family members** hold valid ID cards with current place and address of residence account for 1.6%.

Higher share of respondents from the settlement Bavchi reported that no family members hold valid ID cards with current place and address of residence.

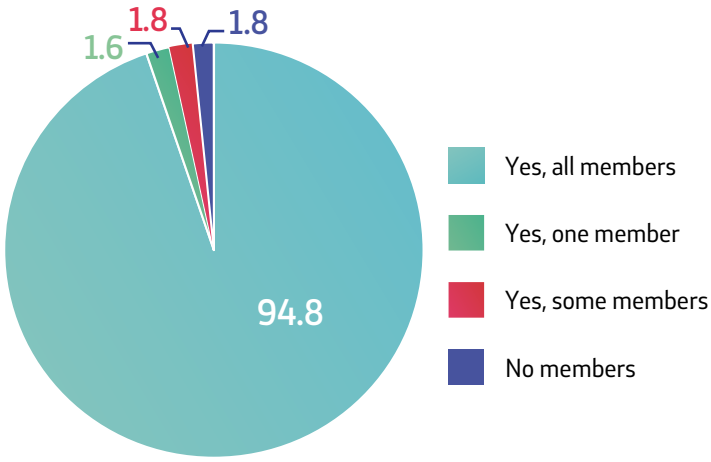


CHART no. 49: Breakdown of households according to members with valid ID cards with current place and address of residence

b) Construction durability and safety of housing units

As regards the **type of external walls**, survey results show that:

- ➔ 96% of housing units have "**pre-manufactured walls**", of which:
  - 46% are made of "bricks or brick blocks";
  - 10% are made of "cement" ;
  - 36% are made of "cement blocks";
  - 2% are made of "limestone";
  - 6% are made of "covered mudbricks";
- ➔ 1% of households have "**natural walls**", mainly made of "uncovered mudbricks";
- ➔ 3% of households have "**primitive walls**" made of mud.

Households in the urban part of Kumanovo and the settlement *Bavchi* more frequently reported primitive walls in their housing units, i.e. 9% and 8% respectively

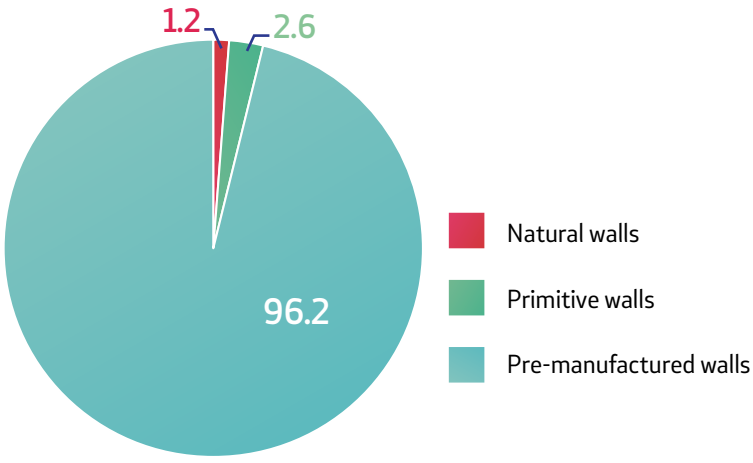


CHART no. 50: Type of external walls in housing units

As regards the **type of roof,** survey results show that:

- ➔ 98% of housing units have "**pre-manufactured roof**", most of which (80%) are made of "roofing tiles", while 9% of roofs are made of "metal/tin" and another 9% are made of "asbestos cement";

➔ 1% of households have "**natural roof**", mainly made of grass;
➔ 1% of households have "**primitive roof**", exclusively made of "planks".

Primitive roofs in their housing units are more frequently reported by residents in the settlement *Bavchi*.

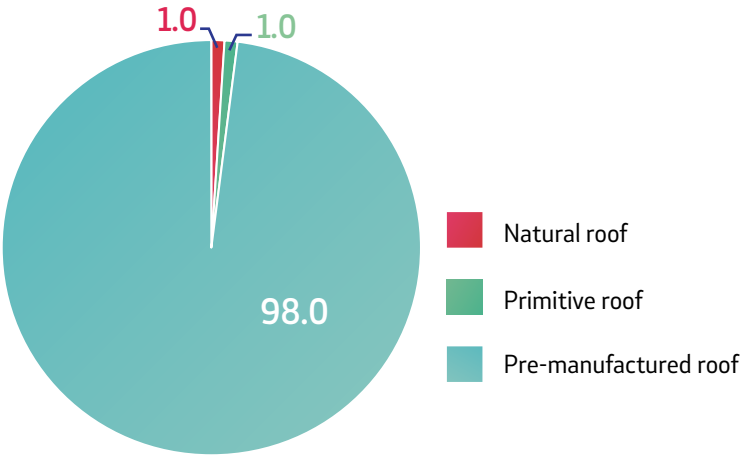


CHART no. 51: Type of roof in housing units

In terms of the type of floors, survey results show that:

➔ 97% of housing units have "**pre-manufactured floor**", of which: one-third (63%) are "laminate", 7% are made of "ceramic tiles", 14% are made of "cement", 9% are "parquet or coated wood" floors, 4% are "vinyl or asbestos stripes" and 3% are "carpet floors";
➔ 1% of housing units have "**natural floor**" made of "earth or sand";
➔ 2% of housing units have "**primitive floor**" made of "planks".

Analysis of cross-referenced data shows that higher shares of residents in the settlement Bavchi reported primitive floors in their housing units.

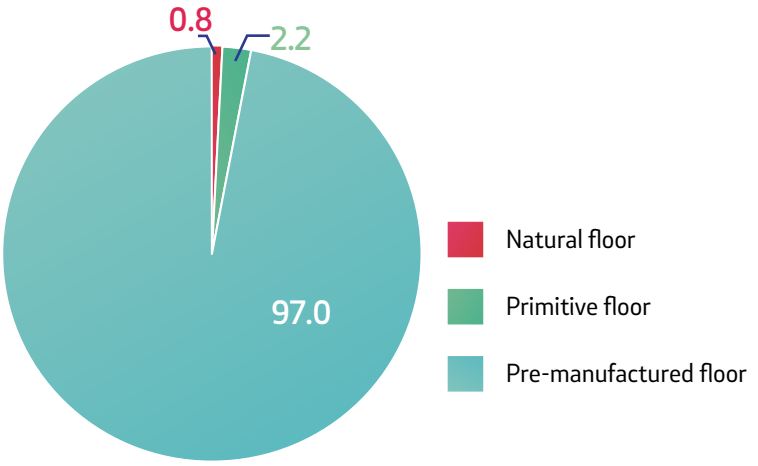


CHART no. 52: Type of floors in housing units

5. HEALTH RISKS CAUSED BY LACK OF BASIC COMMUNAL SERVICES AND INFRASTRUCTURE

a) Type of communal services and infrastructure provided in the settlement

Most frequently indicated **communal services and infrastructure** provided in the settlement include:

➔ "supply of drinking water- water supply network" (99%);

➜ "electricity supply" (93%);
➜ "waste water discharge - sewage" (80%);
➜ "street lighting" (78%).

Other communal services are also present, but with significantly lower share of responses:
➜ 4 of 10 respondents indicated provision of "communal waste collection" in their settlement;
➜ one-fifth of respondents referred to "organized local public transport"; and
➜ one-sixth of respondents referred to "atmospheric water drains" "construction and maintenance of local roads" and "maintenance of public hygiene".

Only 1% of respondents reported provision of services such as: "maintenance of parks, greeneries and recreational areas".

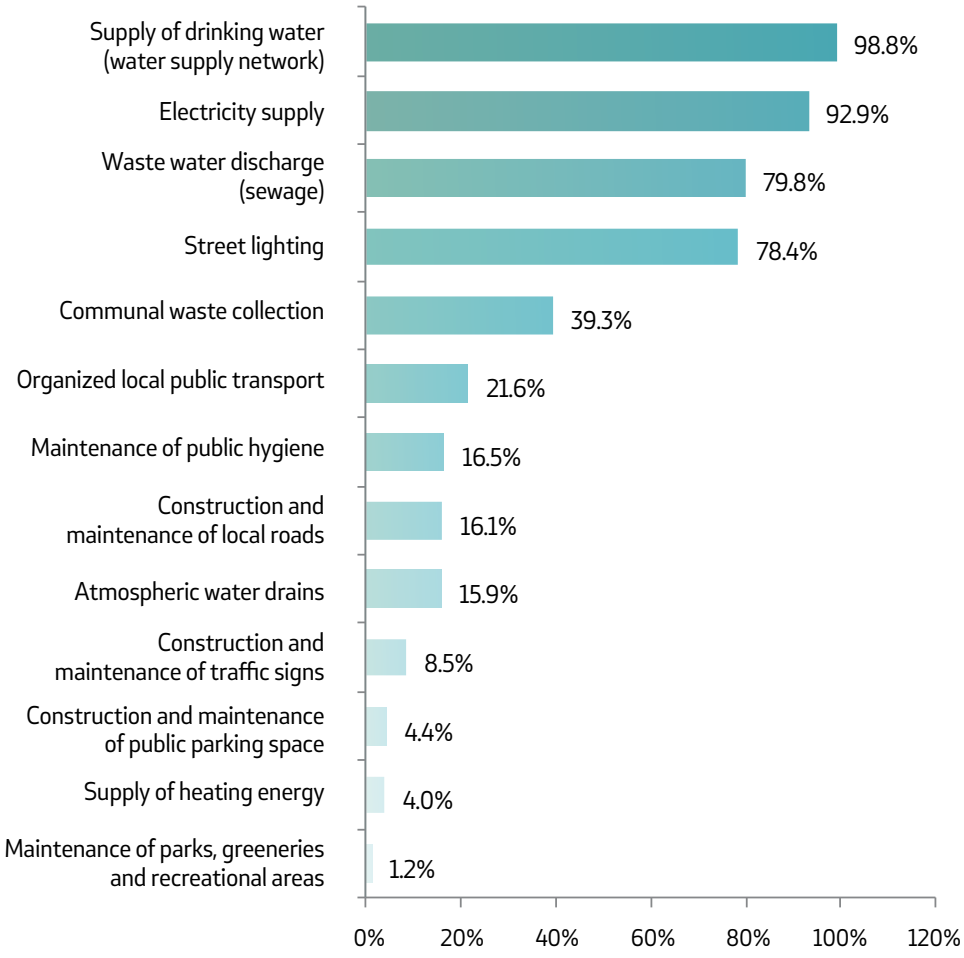


CHART no. 53: Communal services and infrastructure provided in the settlement

Majority of respondents (42%) indicated **disposal of solid waste (garbage)** in "household bins that are collected by communal services", 29% of them reported that solid waste is disposed in "garbage containers", 22.8% referred to "illegal landfill" and 6% referred to "elsewhere, mainly into rivers, buckets or improvised garbage bins".

Analysis of cross-referred data shows significantly higher share of residents in the settlement of Bavchi (65 %) who indicated disposal of solid waste (garbage) from their household at illegal landfills.

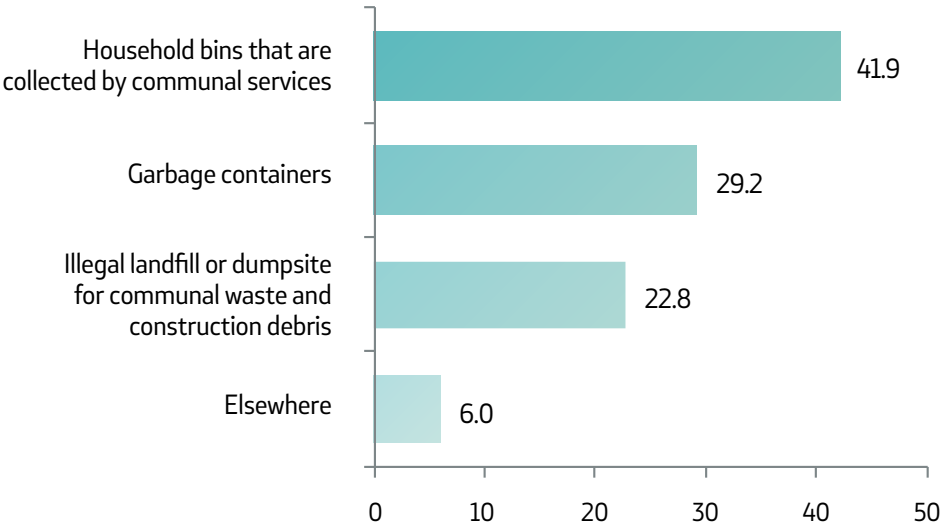


CHART no. 54: Places for disposal of household solid waste

b) Safety of drinking water and sanitary system

For 99.4% of households, "water supply network" is the **main source of drinking water**, of which 96% have "indoor water pipes" and 3.7% have "outdoor water pipes - in the yard or land plot". 0.2% of households use "the neighbour's water pipes" and identical share (0.2%) use water from "drilled well". On the other hand, "dug protected well" is the main source of drinking water for 0.6% of households.

48% of households reported "at least one incident" of **interrupted drinking water supply** in the last month, half of which said the reason thereof was "unavailability of water from the main source", while the other half are unable to ascertain the reason. The remaining 52% of households reported "sufficient water supply".

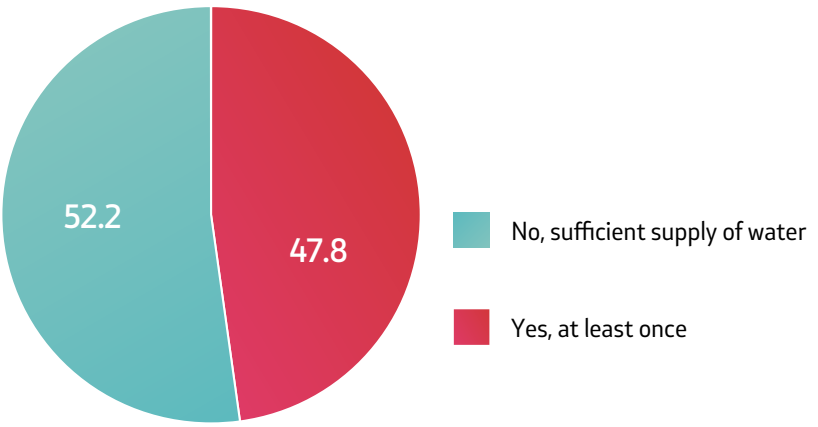


CHART no. 55: Interrupted supply of drinking water in the last month

For vast majority of households (98.8%), "water supply network" is the main source of water for **cooking and washing hands**, mainly with "indoor water pipes" (95.3%) and rarely with "outdoor water pipes - in the yard" (4.5%) or "drilled well" (0.2%). 0.6% of households use water from "protected well" and 0.2% use water from "protected spring".

In 94% of cases, household members **wash hands** using "indoor lavatory", 5.6% indicated "outdoor lavatory - in the yard or land plot", 0.2% reported "portable lavatory, i.e. bucket and pitcher", while another 0.2% of households reported "other place".

42% of households use "soap and detergent" for **washing hands**, while 57% use only "soap".

As regards the **type of toilets**, survey results show that:

→ 95% of housing units have "flushing toilet", of which 90% reported "sewage pipes" for waste water discharge, while 10% reported "unknown", meaning that respondents are not certain where waste water is discharged;

→ 4.6% of households have "non-flushing toilet", of which 34.8% are "outhouse toilets, without cover/open septic tank", 26.1% are "ventilated outhouse toilets with tank" and 39.1% are "outhouse toilets with cover".

Analysis of cross-referenced data shows higher share of residents in the settlement Bavchi who have non-flushing toilets (20%) compared to residents in other Roma settlements covered by the survey.

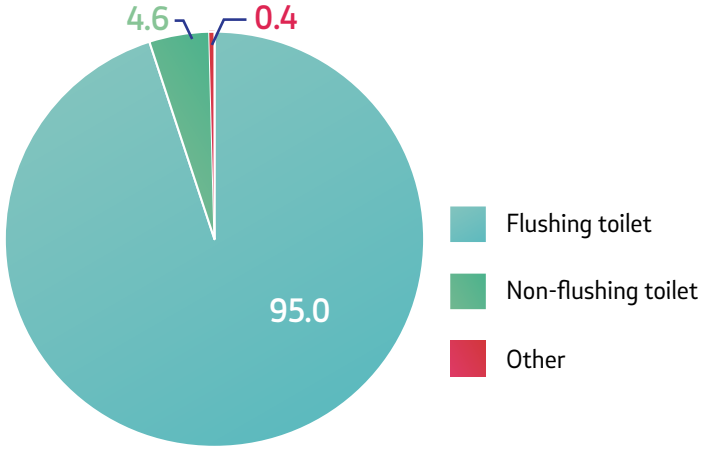


CHART no. 56: Type of toilets in housing units

As regards **location of toilets**, 76% of households have "indoor toilets", 22% of households have "outdoor toilets -in the yard or land plot", while 1.4% of households reported "elsewhere".

Analysis of cross-referenced data shows that higher share of residents in the settlement *Bavchi* (47 %) reported use of outhouse toilets compared to residents in other settlements.

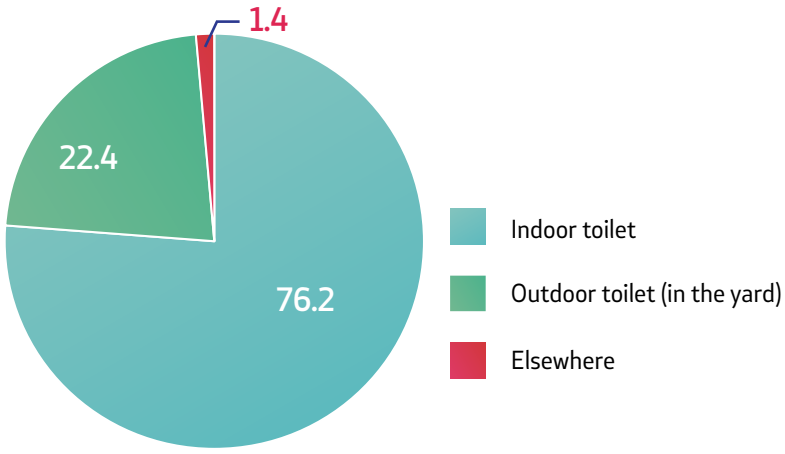


CHART no. 57: Location of toilets in housing units

Vast majority of households (96.4%) **"do not share" the toilet** with other households, while 3.6% "share" their toilet. Among the latter group, 98.6% share the toilet with "known number of households", while 1.4% use "facilities open to the general public".

5 from total of 14 households that have **toilets with septic tank** "have cleaned the tank in the last 5 years", 2 households have cleaned the tank "more than 5 years ago", and 7 respondents were unable to answer the question, i.e. do not know when the septic tank was last cleaned.

As regards the cleaning method of septic tanks:

→ 2 households indicated that the septic tank was cleaned by "providers of such services" and therefore they are unknowledgeable about "the final disposal site";

→ 4 households reported that "the septic tank was cleaned by household members", with 1 household indicating the content was buried "underground" and 3 households indicating "uncovered dam, in the open or into water body".

c) Energy use in households

Vast majority of households, i.e. 492 from total of 496 households (99.2%) **use electricity** through "grid connection". 4 households "do not have" electricity (0.8%).

Moreover, 94% of households have "**chimney**" in their housing units, 5% "do not have chimney", and 1% indicated "don't know".

In respect to **cooking devices**, households referred to use of "electrical stove" (70.4%), "factory-made stove (solid fuel)" (22.6%), "combined stove" (4%), "LPG stove" (1.6%), "traditional stove (solid fuel)" (0.8%), "natural gas stove" (0.2%) and "open fireplace" (0.4%).

Types of fuel or energy source used by cooking stoves include: "electricity" (69%), "wood" (24.2%), "wood charcoal" (2.4%), "petrol/diesel" (1.2%), "processed biomass (pellets) or wood shavings" (1%), "waste/plastic/tires" (0.2%), "animal manure/waste" (0.8%) and "liquified petroleum gas" (1.2%).

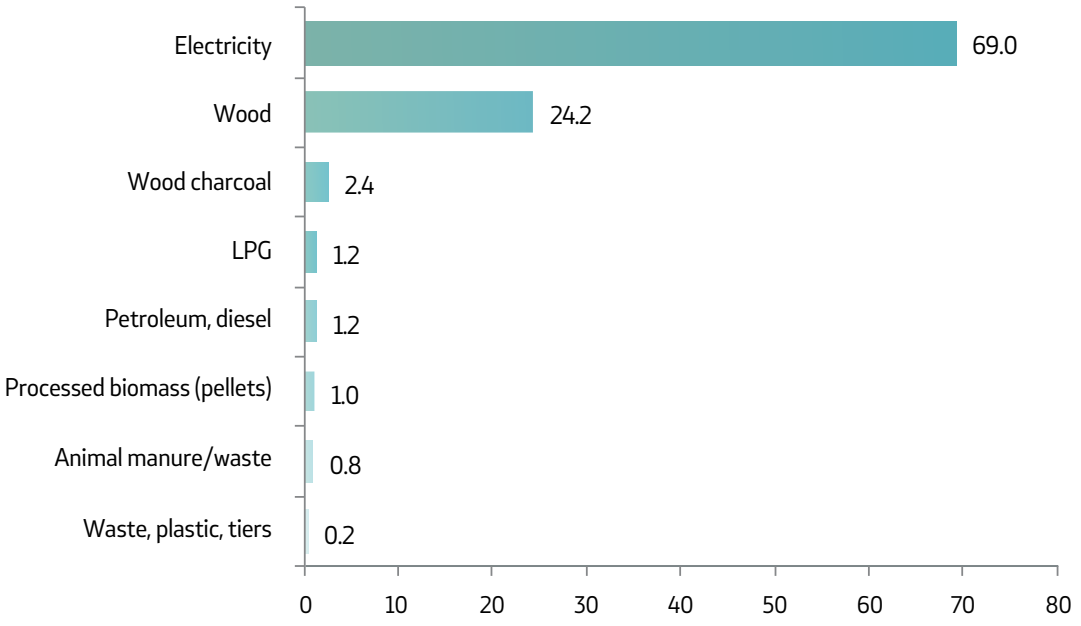


CHART no. 58: Type of fuel or energy source used for cooking stoves

As regards **common place for cooking**, 92% of households usually cook "in the main house", of which 45% indicated "separate room for cooking", while 47% indicated "inside the house, but no separate room". On the other hand, 3.4% of households cook in "separate facility", 3.4% indicated "outside, i.e. on the porch or covered anteroom", and 1.4% of households cook "outside, in the open".

For the purpose of **space heating**, 41% of households use "traditional furnace", 27% use "factory-made furnace", 13.1% - "air-conditioner/inverter", 5.6% - "factory-made room heater", 4.2% - "traditional furnace", 4.2% - "thermal heater", 2.8% - "electric panels/radiators", 1.8% reported "central heating" and 0.4% referred to "open fireplace".

Energy sources used for space heating include: "wood" (52.2%), "electricity" (44.2%), "waste/plastic/tires" (1.2%), "processed biomass (pellets) and wood shavings" (1.2%), "liquified petroleum gas" (0.6%), "wood charcoal" (0.4%) and "natural gas (from the pipeline)" (0.2%).

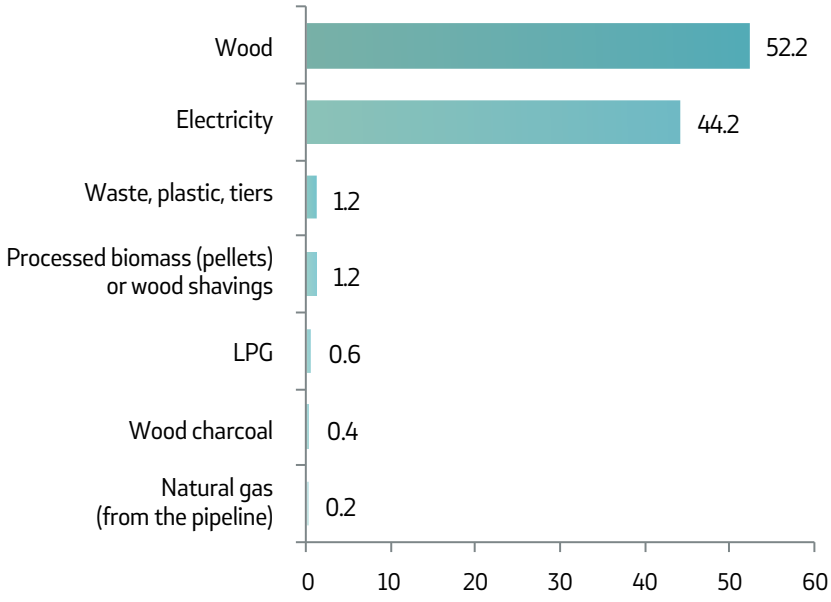


CHART no. 59: Type of fuel or energy source used for space heating in households

Around 42.5% of households "do not use" cooling devices. Among households who have **cooling devices**, 24.8% indicated "air conditioner" and 32.7% indicated "fan (floor or ceiling-mounted)".

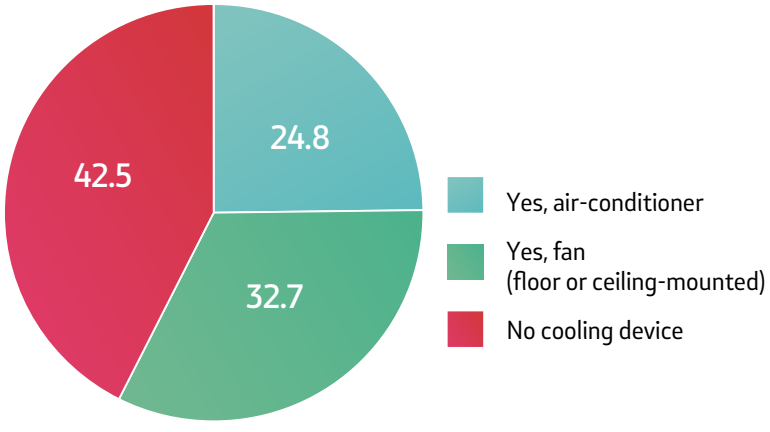


CHART no. 60: Cooling devices used by households

Analysis of cross-referenced data shows higher share of households in the settlement *Bavchi* that do not have cooling devices (58%) compared to households in other Roma settlements covered by the survey.

For the purpose of **night lights,** 492 from total of 496 households (99.2%) reported use of "electricity", while the remaining 2.8% indicated "wood".

6. OTHER HEALTH RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

25.2% of households reported that "no smoking" **inside the house**, while 40.9% indicated "**at least one person smoking every day**" and 33.9% indicated that at least one household member "sometimes" smokes cigarettes inside the house.

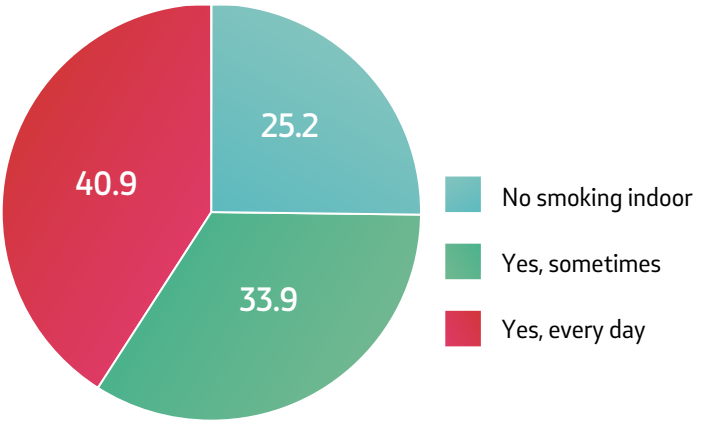


CHART no. 61: Cigarette smoking inside the house by at least one household member

24% of households reported "no humidity or visible mildew" on internal walls in their homes. On the other hand, 42.9% of households reported "humidity" on one or more internal walls, while 33.1% reported "**humidity and visible mildew**".

Analysis of cross-referenced data shows higher frequency of humidity and mildew in households located in the settlements *Bavchi* (40%) and *Sredorek* (45%).

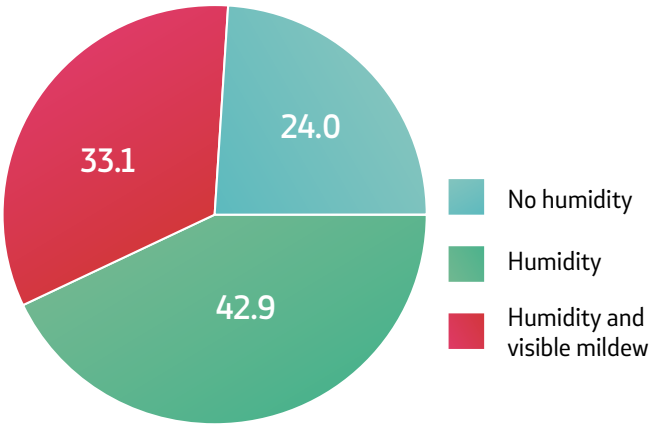


CHART no. 62: Humidity and visible mildew on internal walls of housing units

Among total of 496 respondents, 40% reported **exposure to health risks when performing their current job** in the form of "direct contact with waste", 19% said they are exposed to "smoke", and 0.8% indicated "direct contact with waste water – sewage".

Outdoor work due to the nature of their job in hot summer days when temperatures exceed 37°C was reported by 54% of respondents, of which 11% are "always" and 43% are "sometimes" exposed to high outdoor temperatures.

46% of respondents reported they are "never" exposed to high outdoor temperatures due to the nature of their current job.

IV.3. CITY OF PRILEP

SECTOR COVERAGE OF THE RESEARCH:

URBAN COMMUNITIES: TRIZLA 1 and TRIZLA 2

ROMA SETTLEMENTS:

→ 1. DABNICA (Tri Bagremi, Dabnichka, Erdovan Shabanoski)
→ 2. DEBOJ (Bogomilska, Mavrovska, Moravska, Stibera)
→ 3. MEKSIKO (Berovska, Gostivarska, Shtipska, Debarca, Markovi Kuli, Tole Pasha)
→ 4. NOVO SELO (Dabnichki Zavoj, Veleshka, Sremska, Dojranska, Bogomila).

Based on previously defined instruments, the survey was conducted by the Association for Legal Education and Transparency STATION L.E.T. from Prilep and covered:

→ **700 respondents** - members of households in poor, informal Roma settlements in Prilep, all members of the Roma community. Among them, one-third (230 respondents) are residents in the settlement Dabnica, 27% live in Novo Selo (189 respondents), almost one quarter are residents in the settlement Meksiko (171 respondents) and 15% live in the settlement Deboj (110 respondents);

→ **municipal administration employees** who completed the questionnaire for the Municipality of Prilep;

→ **17 focus group participants** - representatives from urban communities, local NGOs profiled in environmental protection and protection of Roma rights, municipal administration and 2 external experts.

IV.3.1. BASIC DATA ABOUT ROMA SETTLEMENTS

1. LEGAL STATUS OF THE SETTLEMENTS

According to data provided by the municipal administration about the **legal status of Roma settlements** covered by the survey *(existence of urban/spatial plans for the location):*

→ only a portion of settlements are covered with general and detailed urban plans;

→ land designations in the plan is “housing” and “purpose not compatible with housing”, as wells as “other purpose (non-residential)”;

→ type of green areas in the settlements include:
- line of trees - green formation lining traffic roads;
- non-arranged greenery - non-arranged area intended for public greenery in urban plans (abandoned surface ditches, landfills, lands, etc.).

2. SAFETY OF SETTLEMENT LOCATION IN RESPECT TO ENVIRONMENTAL HEALTH RISKS

According to data provided by the municipal administration about **exposure to hazardous environmental conditions and related health risks:**

➜ the settlements ARE WITHIN AN AREA susceptible to **national disasters**:

- river flooding;
- heavy rains;

➜ the settlements ARE NOT IN VICINITY OF **hazardous environmental conditions** *(per type - substandard landfills and rubbish dumpsites, abandoned industrial facilities, mines, etc.):*

➜ the settlements ARE NOT EXPOSED to **hazardous housing conditions**.

Survey results related to **hazardous environmental conditions** show that:

➜ 66% of respondents said that settlements ARE NOT IN VICINITY of hazardous environmental conditions;

➜ 34% of respondents said that settlements ARE IN VICINITY of hazardous environmental conditions, as follows:

- 17% of them referred to "substandard landfill for solid communal waste";
- 15% of them referred to "dumpsite for communal waste and construction debris not collected by relevant communal enterprises".

As regards **activities that contribute to ongoing air pollution:**

➜ 2.4% of respondents reported "industrial facility or activities such as burning tires and electric cables in the open" in vicinity of their homes (at distance of 2 kilometres), which contributes to air pollution.

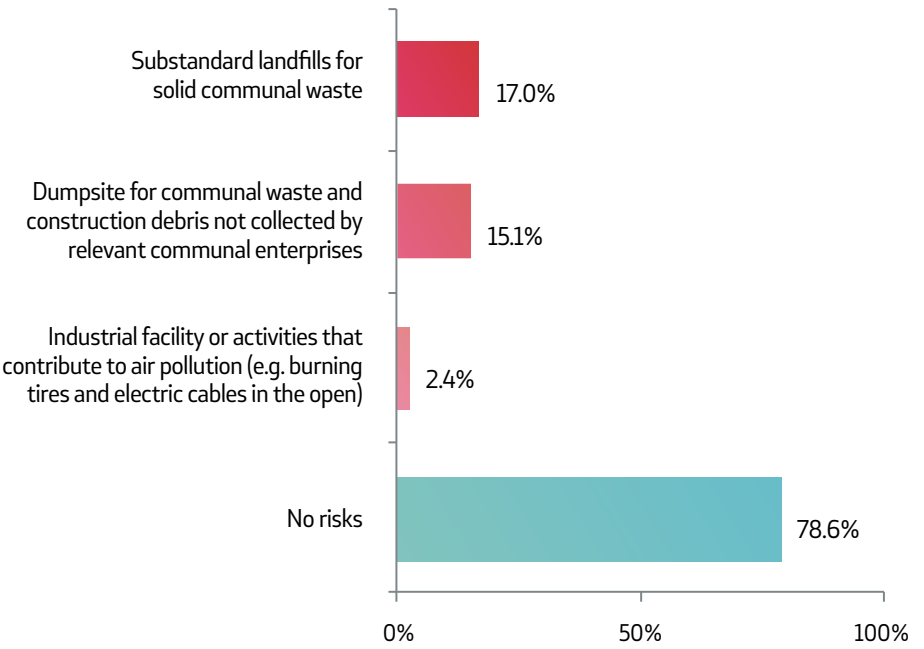


CHART no. 63: Hazardous environmental conditions (per type) in vicinity of Roma settlements (survey results)

IV.3.2. BASIC CHARACTERISTICS OF ROMA HOUSEHOLDS COVERED BY THE SURVEY

1. TYPE OF HOUSEHOLDS IN ROMA SETTLEMENTS

As regards the **type of households in Roma settlements**, survey results show that:

➔ 91% are "family households" (comprised of one, two or more families", of which 92% are "single-family households", while 8% are households with "two or more families";

➔ 9% are "non-family households" (comprised of one, two or more non-related persons), of which 86% are "single-person households", while 14.3% are non-family households with "two or more non-related persons".

There are no statistically significant differences between surveyed settlements in respect to distribution of responses according to type of households.

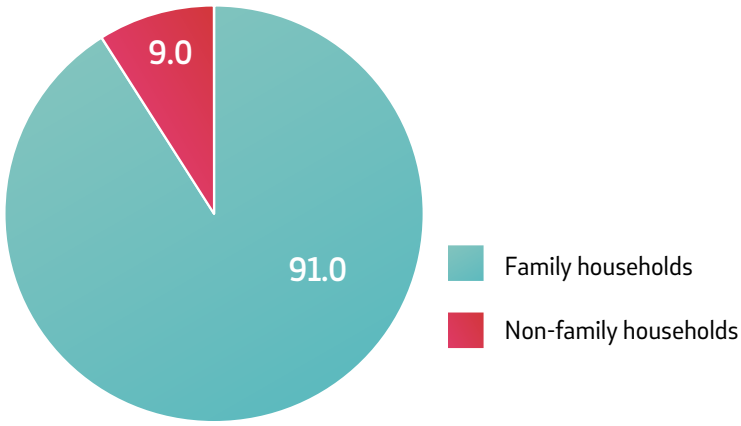


CHART no. 64: Type of households in Roma settlements

2. DURATION OF RESIDENCE IN ROMA SETTLEMENTS

According to survey results on duration of residence in the settlement:

➔ 91.9% of respondents "have always lived here, from birth";

➔ 8.1% of respondents "have moved to the settlement", of which 80% have moved from "another settlement in Macedonia" and 20% have moved from "another country".

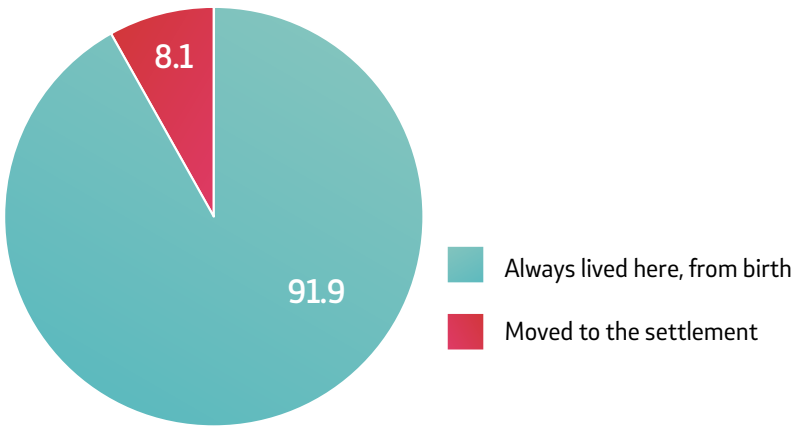


CHART no. 65: Duration of residence in the settlements

3. PRESENT HEALTH STATUS OF HOUSEHOLD MEMBERS

Asked to assess **their own and the health of household members,** 50.1% of respondents reported "good health", 36.6% indicated "neither good nor poor health", while 12.6% reported "poor health" at the time of surveying.

There are no statistically significant differences in responses obtained according to the settlement where surveyed respondents live.

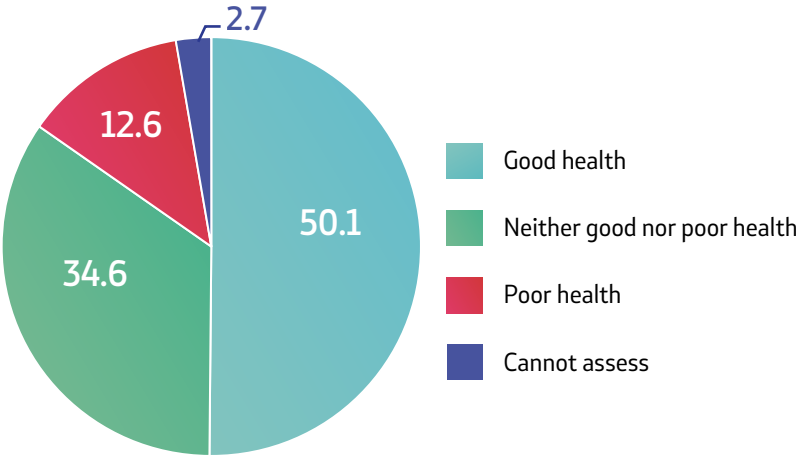


CHART no. 66: Assessment of present health status among household members

As regards **chronic diseases among household members**, 32.6% of respondents indicated "hypertension", 15.4% - "heart disease", 10.7% - "diabetes", 10.2% - "asthma", 10.5% - "heart attack" and 8.8% - "stoke". Less frequently reported health conditions include "chronic pulmonary disease" (3.8%), "chronic kidney disease" (2.8%), "chronic liver disease" (2%), "carcinoma" (0.7%) and "tuberculosis" (0.6%).

46.1% respondents did not report any chronic diseases among household members.

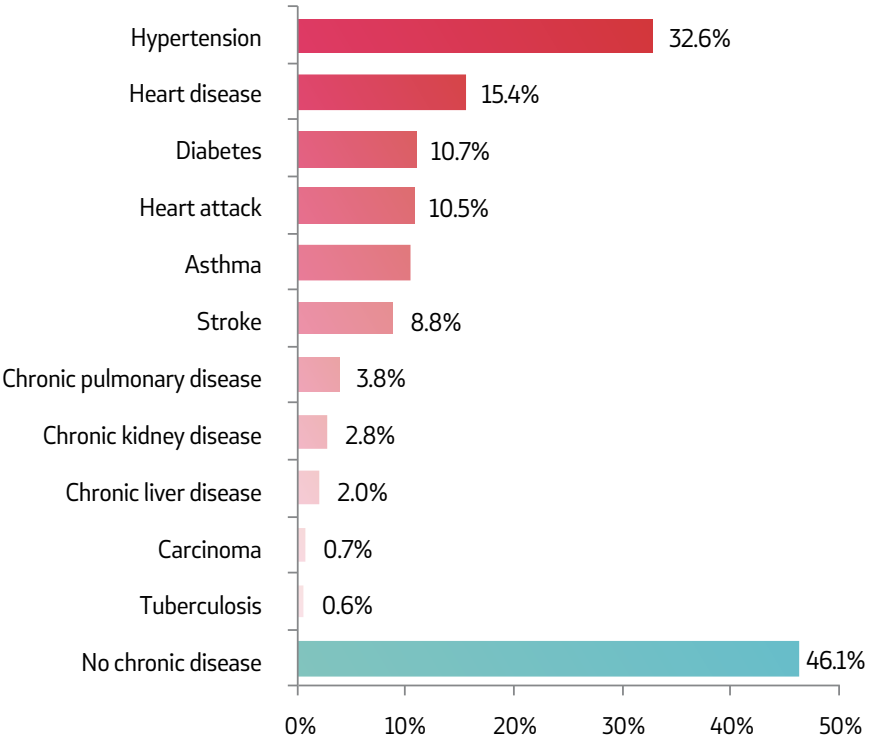


CHART no. 67: Share of reported chronic health conditions/diseases among household members

34.7% of respondents said that, in the last 2 months, members of their households "have not suffered" from health conditions such as **cold, cough, running nose**, sore throat, difficult breathing, bronchitis, pneumonitis, etc. On the other hand, 21.6% indicated "several instances" of these health conditions and 37.1% indicated "one instance".

6.6.% of respondents were unable to assess whether and how many times members of their households suffered from these health conditions in the last 2 months.

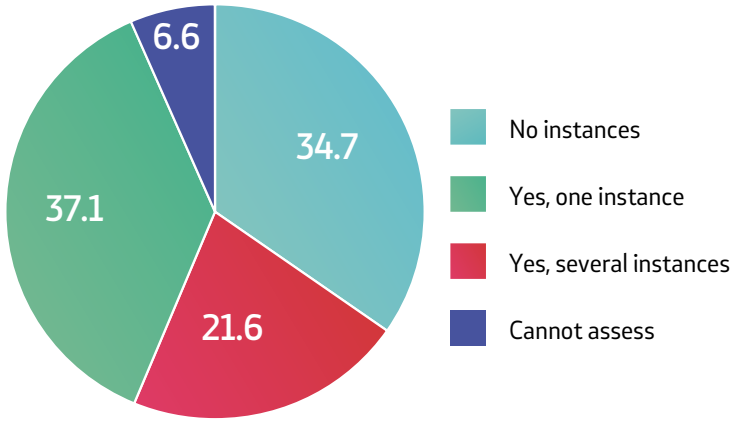


CHART no. 68: Share of reported health conditions such as cold, cough, running nose, sore throat, difficult breathing, bronchitis, pneumonitis, etc. in the last 2 months

62.6% of respondents said that, in the last 2 months, members of their households "have not suffered" from **gastrointestinal diseases (vomiting, diarrhoea**, stomach pain, etc). On the other hand, 4.9% of respondents indicted "several instances" and 19.6% indicated "one instance" of these health conditions among household members.

13% of respondents were unable to assess whether and how many times members of their household suffered from indicated health conditions in the last 2 months.

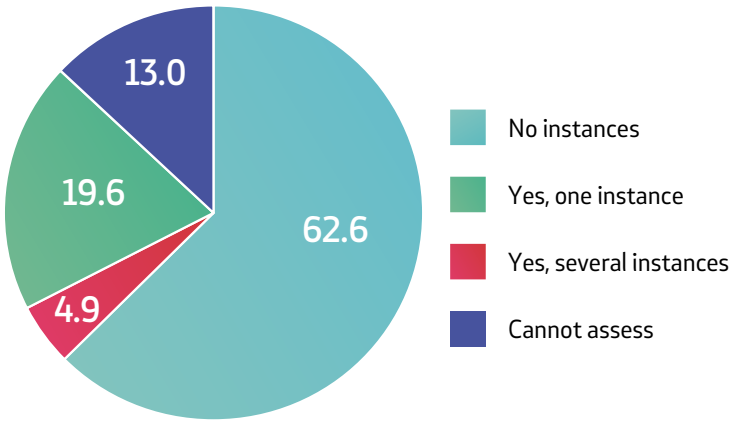


CHART no. 69: Share of reported gastrointestinal diseases (vomiting, diarrhoea, stomach pain, etc.) in the last 2 months

IV.3.3. SPECIFIC ENVIRONMENTAL RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

1. HEALTH RISKS CAUSED BY THE CONSTRUCTION QUALITY OF HOUSING UNITS

a) Type and ownership of housing units where households are accommodated

Survey results on the **type of housing units where household are accommodated** show that:

- ➜ 60.2% of households live in "stand-alone house with construction permit";
- ➜ 35.9% of households live in "stand-alone house without construction permit";
- ➜ 0.1% of households live in "residential building with two or more housing units, without construction permit";
- ➜ 2% of households live in "informal housing unit without construction permit (shed, shelter, etc.)";
- ➜ 1.3% of households live in "rented housing unit".

Analysis of cross-referenced data shows that significantly lower share of responses indicating "stand-alone house without construction permit" among residents in Novo Selo (7.9%) compared to other settlements covered by the survey.

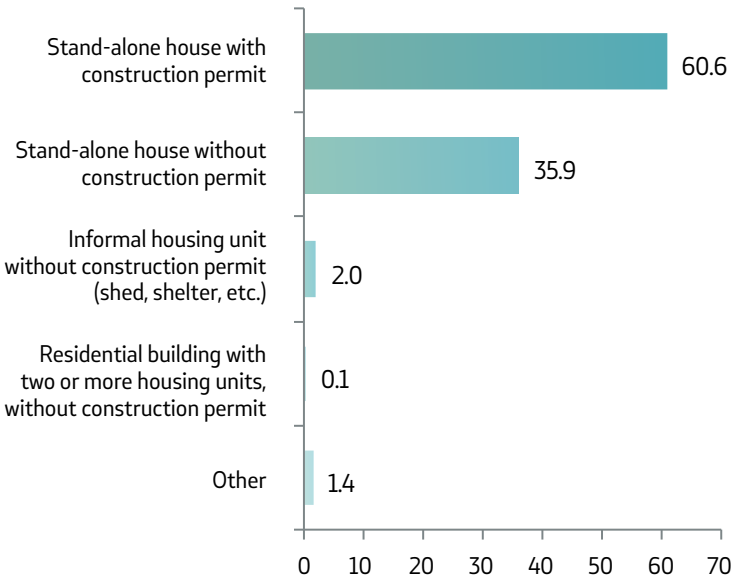


CHART no.70: Type of housing units where households are accommodated

According to the **number of rooms per housing unit**, 29% of households live in housing unit with "three rooms", 23% live in housing unit with "two rooms", 16% live in housing unit "with two-and-half rooms", while 1 of 10 households live in housing unit with "four rooms". Other households live in housing units with "one room" (8%), "three-and-half rooms" (6%) and "multiple rooms" (6%).

As regards **ownership of housing units** where they are accommodated, 85% of households live in housing unit "owned by the respondent or another family member". Less than 1 of 10 households live in "rented housing unit", while 6% of households live in "non-legalized houses".

70.6% of respondents indicated that "all household members" hold **valid ID cards with current place and address of residence"**, while 3.3% reported "only one household member" that holds valid ID card with correct residence address. On the other hand, in 22.3% of cases, "**no family members**" have valid ID cards with current place and address of residence.

Households in which "some members" hold valid personal identification document account for 3.9%, of which 40% indicated "three members", 37% indicated "two members", while 11% indicated "four members".

Cross-referenced data according to settlement where respondents live show significantly higher share of entire households without valid ID cards in *Dabnica* (44.8%).

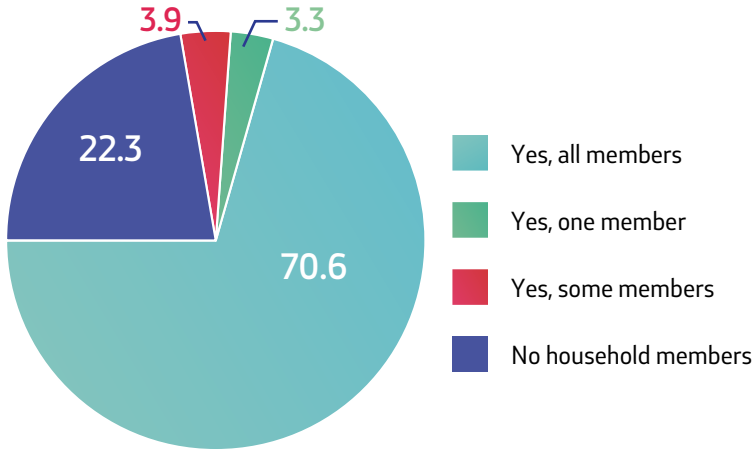


CHART no. 71: Breakdown of households according to the number of members that hold valid ID card with current place and address of residence

b) Construction durability and safety of housing units

As regards the **type of external walls in housing units**, survey results show that:

→ 95% of housing units have "**pre-manufactured walls**", of which 79% are made of "bricks and brick blocks", 4% are made of "cement", 12% - "cement blocks", 1% - "limestone", 5% - "covered mudbrick" and 0.2% are made of "planks";

→ 0.4% of housing units have **"natural walls"**, mainly made of "mud";

→ 4% of housing units have "**primitive walls**", mostly made of "clay" (39%),"cardboard" (26%), "plywood" (16%), "uncovered mudbricks" (13%) or "recycled wood" (7%).

Primitive walls in housing units are more frequently reported by residents from *Dabnica* (9.6%) compared to residents in other Roma settlements covered by the survey.

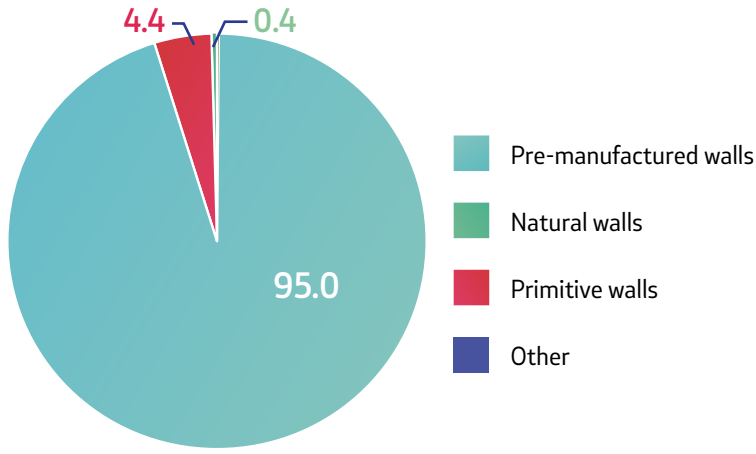


CHART no. 72: Type of external walls in housing units

As regards the **type of roofs**, survey results show that:

→ 96.4% of housing units have "**pre-manufactured roof**", majority of which (98%) are made of "roofing tiles", while others are made of "metal/tin", "shingle", "cement" or "asbestos cement";

→ 0.1% of housing units have "**natural roof**", mainly made of "grass";

→ 3% of housing units have "**primitive roof**", of which 67% are made of "planks", while others are made of "cardboard" (25%) or "reed mat" (8%).

Higher share of residents in the settlement *Dabnica* reported housing unit roofs made of primitive materials (7.5%).

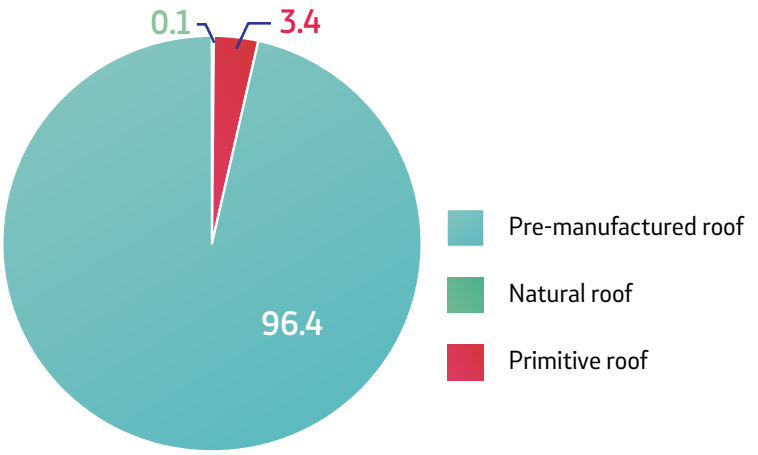


CHART no. 73: Type of roofs in housing units

According to the **type of floors**:

→ 92.7% of households live in housing units with "**pre-manufactured floor**", of which half (46%) are made of "laminate", 4% are made of "ceramic tiles", 27% are made of "cement", 16% are made of "parquet or coated wood" and 8% are made of "carpet";

→ 5% of households live in housing units with "**natural floor**", majority of which are made of "earth or sand" (94%) and small portion are made of "garbage material";

→ 2.3% of households live in housing units with "**primitive floor**" made of "wood planks".

Primitive and natural floors are more common in housing units of residents in the settlement *Dabnica*.

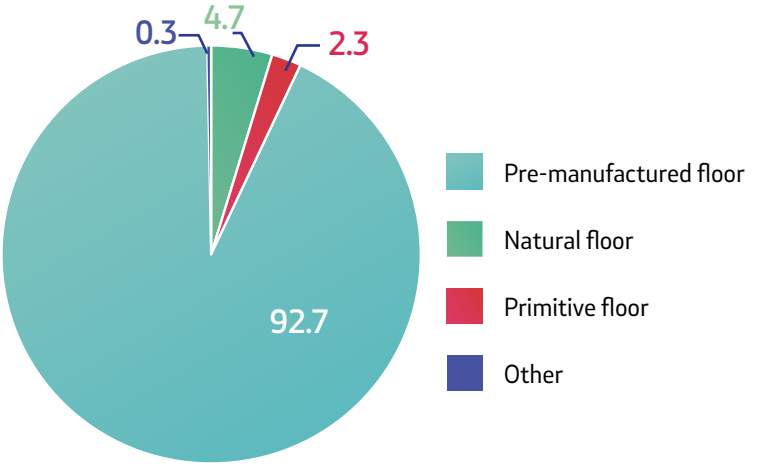


CHART no. 74: Type of floors in housing units

2. HEALTH RISKS CAUSED BY LACK OF BASIC COMMUNAL SERVICES

a) Type of communal services and infrastructure provided in the settlement

Most frequently indicated **communal services and infrastructure** provided in settlements covered by the survey include:

- ➔ "electricity supply" (98.3%);
- ➔ "drinking water supply - water supply network" (90.4%);
- ➔ "street lighting" (86.9%);
- ➔ "waste water discharge - sewage" (85.6%) and "communal waste collection" (78%).

Very low shares of respondents referred to communal services such as "atmospheric water drains" (3%), "maintenance of public hygiene" (3%) and "construction and maintenance of local roads" (0.3%).

Communal services that are not provided in surveyed settlements concern "heating energy - district heating", "construction and maintenance of public parking space", "construction and maintenance of traffic signs", "organization of local public transport", and "maintenance of parks, greeneries and recreational areas".

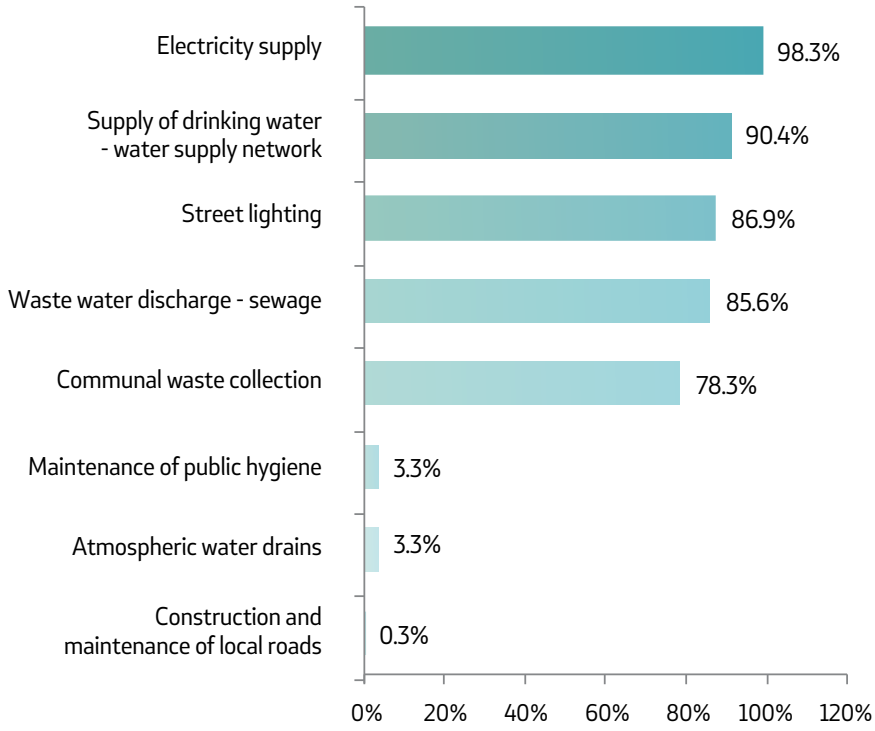


CHART no. 75: Communal services and infrastructure provided in the settlements

High share of respondents (88.4%) indicated **disposal of solid waste (garbage)** in "household bins that are collected by communal hygiene services", 1.3% of households dispose waste directly in "garbage containers", 9.1% - "illegal dumpsite", and 1% indicated "elsewhere".

Higher share of residents in the settlement Dabnica reported disposal of solid waste (garbage) at illegal landfills (23%).

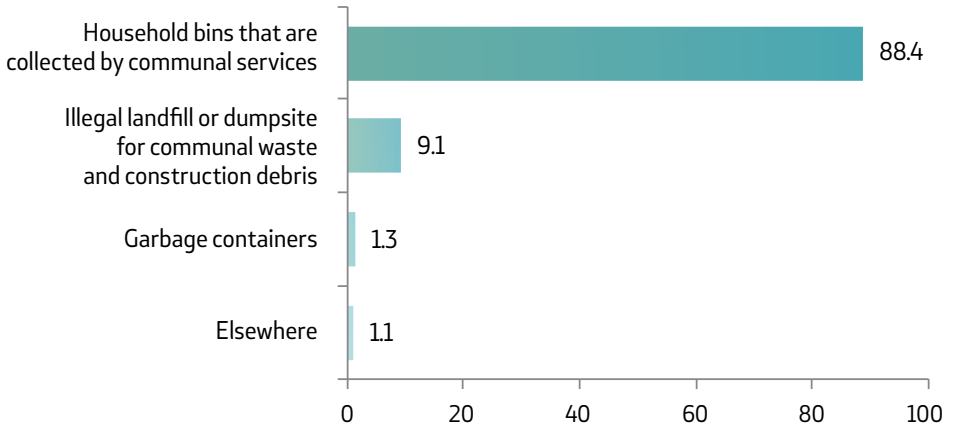


CHART no. 76: Places for disposal of household solid waste

b) Safety of drinking water and sanitary system

81% of households indicated "water supply network" as the **main source of drinking water.** Among them, 77% have "indoor water pipes", while 3.7% have "outdoor water pipes - in the yard or land plot". 0.7% of households use "the neighbour's water pipes" as source of drinking water, 2.6% indicated "public water fountains", and 8% of households use "bottled water".

10.4% of households drink "water from springs", majority of which (74%) indicated "surface water", while 26% indicated "water from protected spring".

Higher share of residents in the settlement Dabnica indicated springs as main source of drinking water (28%).

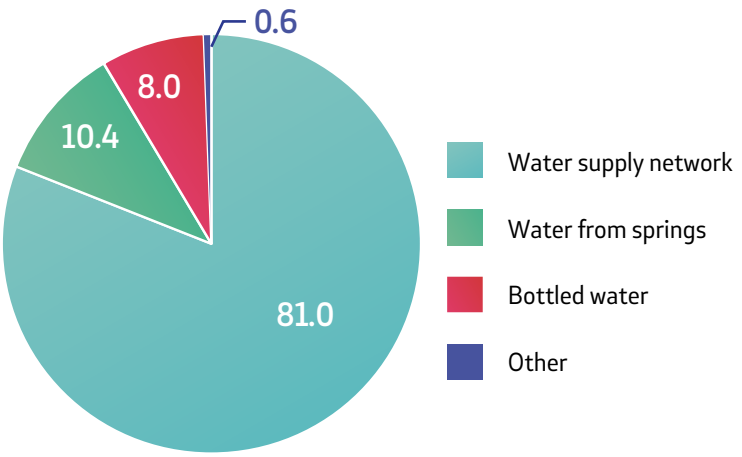


CHART no. 77: Main source of drinking water for household members

As regards **interruption in water supply** during the last month, 23.7% of households reported "at least one incident", of which 56% indicated that the reason was "unavailability of water from the main source", 32% - "no access to main source of drinking water", 6% - "water was too expensive", while 1.2% reported "low pipe pressure". Around 4% of respondents do not know the reason for interrupted supply of drinking water in their households.

Remaining 76.3% of households reported "sufficient supply of water".

Households in the settlement *Dabnica* more frequently reported problems with interrupted water supply (40%), while the lowest frequency of such answers is noted among households in the settlement *Deboj* (7.3%).

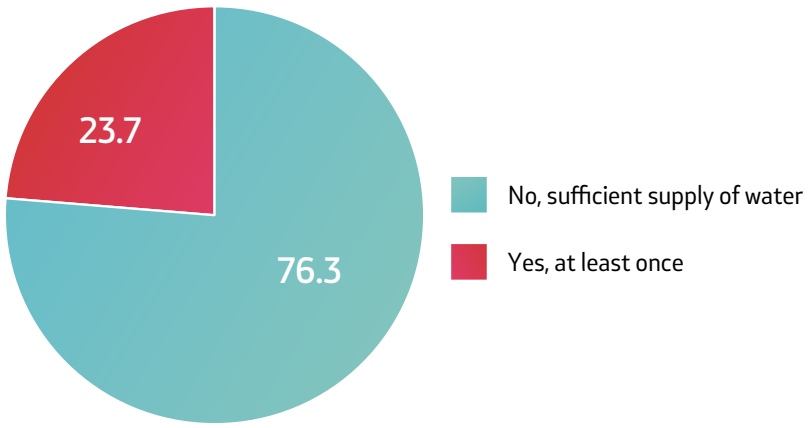


CHART no. 78: Interrupted supply of drinking water in the last month

86% of households indicated "water supply network" **as the main source of water for cooking and washing hands,** most often from "indoor water pipes" (77%) and rarely from "outdoor water pipes - in the yard or land plot" (22 %). "Water from springs" is used by 12.7% of households, 0.6% reported "bottled water" and 1 respondent indicated "well" as source of water for cooking and washing hands.

As regards **washing hands**, 68% of households have "indoor lavatory", while 24% have "outdoor lavatory - in the yard or land plot". Use of "portable lavatory, i.e. bucket and pitcher" was reported by 5% of households, while 2.4% of households "do not have lavatory" inside the house or in the yard.

9% of households use "soap and detergent" **for washing hands**, 3% use only "detergent", while 83% use only "soap". Almost 6% of households do not use neither soap nor detergent for washing hands.

As regards the **type of toilets**, survey results show that:

→ 68% of housing units have "**flushing toilet**". In 9% of cases, waste water is discharged into "sewage pipes", while 4% indicated "unknown place", which means that respondents are not certain about the final destination of discharge pipes;

→ 32% of housing units have "**non-flushing toilet**", one-fifth of which indicated "uncovered outhouse toilet/septic tank", 10% indicated "ventilated outhouse toilet with septic tank", two-thirds have "covered outhouse toilet" and 4% have "suspended outhouse toilet".

Analysis of cross-referenced data shows that higher share of households in the settlements *Dabnica* (44%) and *Meksiko* (43%) indicated outhouse toilets compared to households in the settlements *Deboj* (6%) and *Novo Selo* (22%).

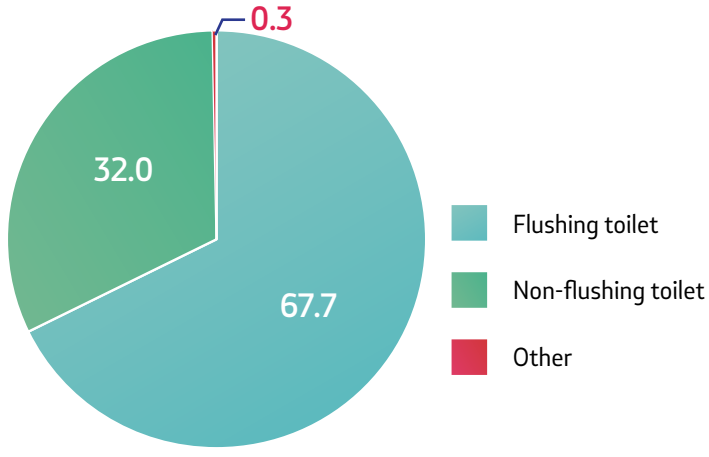


CHART no. 79: Type of toilets in housing units

As regards **location of toilets**, 47% of households have "indoor toilets", 49.9% have "outdoor toilets - in the yard", and 3.1% indicated "elsewhere".

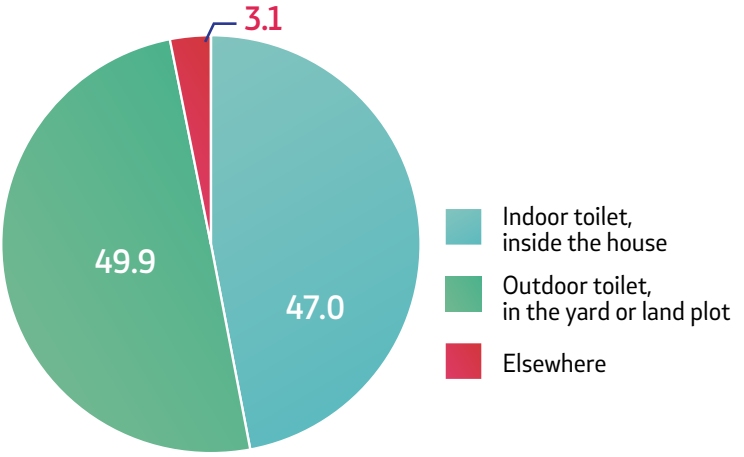


CHART no. 80: Location of toilets in housing units

Vast majority of households (98%) "**do not share**" the toilet with members of other households, while 2% "share" their toilet. Among them, half of households share the toilet with "known number of households", and the other half use "facilities open to the general public".

Among 90 households that have **septic tanks**, 2 households "have emptied the content in the last 5 years", 6 households have done that "more than 5 years ago", 46 respondents indicated that the septic tank "has never been cleaned", while 36 respondents were unable to answer the question, i.e. do not know when the septic tank was last cleaned.

As regards the cleaning method of **septic tanks**:

→ one-fifth of households indicated "providers of such services", whereby 9 of 10 respondents indicated "no knowledge of the final disposal site";

→ 63% of households said the septic tank "was cleaned by household members", with three quarters of them having buried the content "underground", while one quarter have buried the content in "open dam, in the open or into water body";

→ 17% of households reported "other method".

c) Energy use in households

Vast majority of households, i.e. 663 from the total of 700 households (94.7%) covered by the survey indicated **use of electricity** through "grid connection", while 33 households (4.7%) use electricity, but are not connected to the grid. 6 households (0.6%) do not have electricity.

Analysis of cross-referenced data shows higher share of residents in the settlement *Dabnica* (10.4%) who use electricity without grid connection compared to residents in other settlements.

Most frequently indicated **cooking devices** include: "electric stove" (86%), "factory-made stove (solid fuel)" (3%) and "open fireplace" (2%). 1% of respondents indicated other type of stoves.

90% of households have "chimney" in their housing unit, while 10% "do not have" chimney.

Main **type of fuel or energy source** used for cooking stoves is "electricity" (84.1%), followed by "wood" (8.2%), "coal/lignite" (2.4%), "processed biomass (pellets) and wood shavings" (1.6%), "waste/plastic/tires" (0.3%) and "wood charcoal" (0.1%).

Households in the settlement *Deboj* (22%) more frequently indicated wood as main source of energy for cooking.

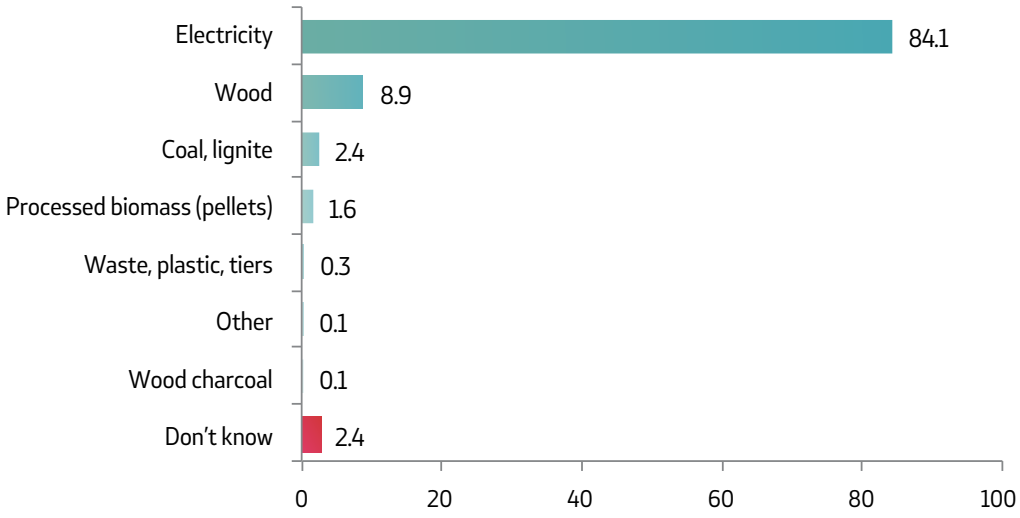


CHART no. 81: Type of fuel or energy source used for cooking stoves

As regards **common place for cooking**, 9 of 10 households usually cook "in the main house", of which 22% indicated "separate room for cooking", while 71% indicated "no separate room". On the other hand, 0.9% of households cook in "separate facility", 2.3% cook "outside -on the porch or covered anteroom", 2.3% cook "outside, in the open", while 1.3% of households "do not cook".

For the purpose of **space heating**, 74% of households use "factory-made stove", 12% use "traditional stove", 3% use "electric panels/radiators", 3.3% - "thermal heater", 2.7% - "space heater" and 1.7% - "traditional furnace". Other methods of space heating were indicated by less than 3% of households.

Majority of households (86.1%) use "wood" as **fuel or energy source for space heating,** followed by "electricity" (11.6%), "agriculture waste/ grass/ straw/ branches" (1.7%), while less than 0.3% of households use other type of fuel.

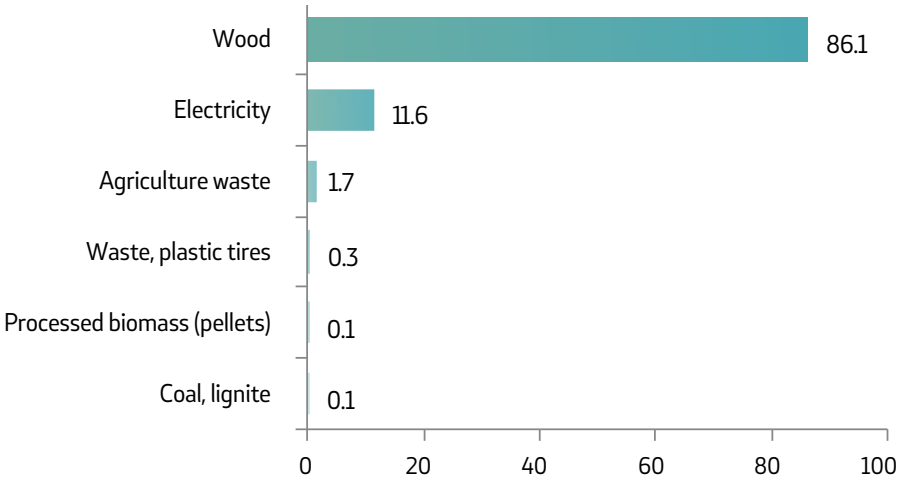


CHART no. 82: Type of fuel or energy source used for space heating

Around 43.9% of households "do not have" **cooling devices**. Among households that use cooling devices (9.1%), 9% indicated "air-conditioner", while 47% indicated "fan (floor or ceiling-mounted)".

Unlike other settlements, higher share of households in the settlement *Deboj* (66%) do not have cooling devices.

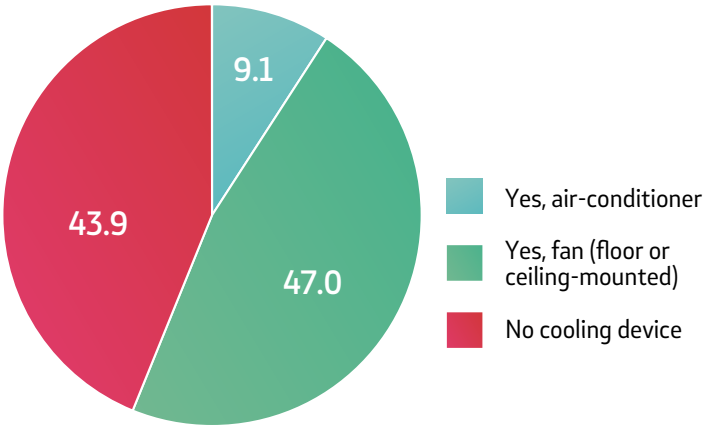


CHART no. 83: Cooling devices used by households

673 from total of 700 respondents (96.1%) reported use of "electricity" for **night lights**, 9 households use "candles", 5 households use "wood", 4 – "solar energy lights", 8 households indicated "other" and 1 household indicated "agriculture waste/ grass/ straw/ branches".

3. OTHER HEALTH RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

52.7% of respondents reported "no smoking" **inside the house**. On the other hand, 26% of respondents said that "at least one person smokes **inside the house** every day", while 21.3% of them said that household members "sometimes" smoke cigarettes inside the house.

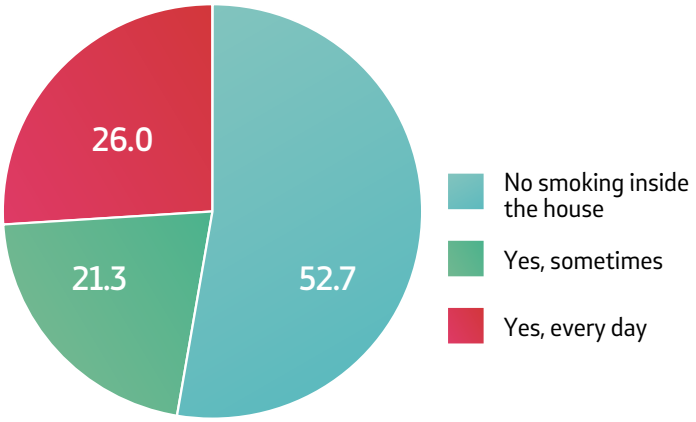


CHART no. 84: Cigarette smoking inside the house by at least one household member

24% of households reported "no humidity or visible mildew" on internal walls in their housing unit. On the other hand, 42.9% of households reported "humidity" on one or more internal walls, while 33.1% reported "**humidity and visible mildew**".

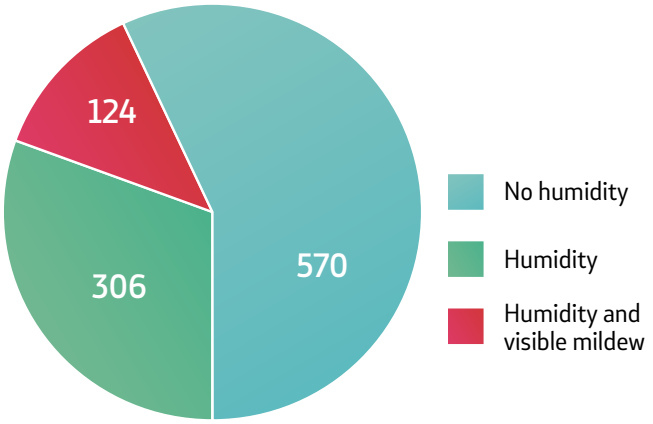


CHART no. 85: Humidity and visible mildew on internal walls of housing units

As regards **exposure to health risks when performing their current job**: 16% of respondents reported "direct contact with waste", 3% indicated exposure to "smoke", while other 3% reported "direct contact with waste water – sewage".

Among respondents exposed to at least one of above-indicated health risks, 72.9% said they "never" use adequate protection equipment (gloves, face masks, waterproof boots, etc.) when performing their job, 14.6% said they "sometimes" use adequate protection equipment, and only 12.6% "always" use adequate protection equipment.

Outdoor work due to the nature of their job in hot summer days when temperatures exceed 37°C was reported by 47% of respondents, of which 17% are "always" and 30% are "sometimes" exposed to hot outdoor temperatures.

53% of respondents said they are "**never**" exposed to high outdoor temperatures due to the nature of their job.

IV.4. CITY OF VINICA

SECTOR COVERAGE OF THE SURVEY:

URBAN COMMUNITY: THERE ARE NO URBAN COMMUNITIES.
ROMA SETTLEMENT:
→ ROMA NEIGHBOURHOOD.

BBased on previously defined instruments, the survey was conducted by NGO KHAM from Delchevo and covered:

→ **148 respondents** - members of households from Roma settlements in Vinica, all members of the Roma community. Vast majority of respondents are men (87%), while women account for 13%. 6 of 10 respondents are unemployed, representing a majority in the survey sample. 3 of 10 respondents (29%) have permanent employment contracts, of which 22% work in the public sector, 6.1% work in the private sector, and 0.7% are business owners. Almost 10% of respondents are pensioners, 0.7% are freelance and gig workers, 1.4% reported another employment status that does not belong to any of the categories offered in the survey questionnaire;

→ **municipal administration employees** who completed the questionnaire for the Municipality of Vinica;

→ **12 focus group participants** - representatives from local NGOs profiled in environmental protection and protection of Roma rights, municipal administration, representatives from the municipality's environmental inspectorate and 2 external experts.

IV.4.1. BASIC DATA ABOUT ROMA SETTLEMENTS

1. LEGAL STATUS OF THE SETTLEMENT

According to data provided by the municipal administration about the **legal status of the Roma settlement** covered by the survey (*existence of general/urban plans for the location*):

→ the settlement is "suburban, located on the periphery of the City of Vinica";

→ the settlement is covered with general urban plan;

→ the general urban plan covers only portion of the settlement's territory;

→ land designation in the general plan is “housing”;

→ there is no detailed urban plan for the settlement;

→ there is no urban greenery.

2. SAFETY OF SETTLEMENT LOCATION IN RESPECT TO HAZARDOUS ENVIRONMENTAL CONDITIONS

CAccording to data provided by the municipal administration about exposure to hazardous environmental conditions and related health risks:

→ the settlement IS WITHIN AN AREA susceptible to **natural disasters**:
- river flooding;
- snow storms, deluges and thunderstorms;

→ the settlement IS IN VICINITY of **hazardous environmental conditions** (*per type – substandard landfills and rubbish dumpsites, abandoned industrial facilities, mines, etc.*):
- substandard landfill for solid communal waste;

→ the settlement IS EXPOSED to **hazardous housing conditions**:
- space heating by burning solid waste.

As regards **vicinity of hazardous environmental conditions**, survey results show that:

→ 99.3% of respondents said that the settlement IS NOT IN VICINITY of hazardous environmental conditions;

→ 1 respondent said that the settlement IS IN VICINITY of substandard landfill for solid communal waste

IV.4.2. BASIC CHARACTERISTICS OF ROMA HOUSEHOLDS COVERED BY THE SURVEY

1. 1. TYPE OF HOUSEHOLDS IN THE ROMA SETTLEMENT

As regards the **type of households**, survey results show that:

→ 95.9% are “family households” (*comprised of one, two or more families*), of which 78% are “single-family households”, while 22 % are households with “two or more families”;

→ 4.1% are “non-family households” (*comprised of one, two or more non-related persons*), all of which are “single-person households”.

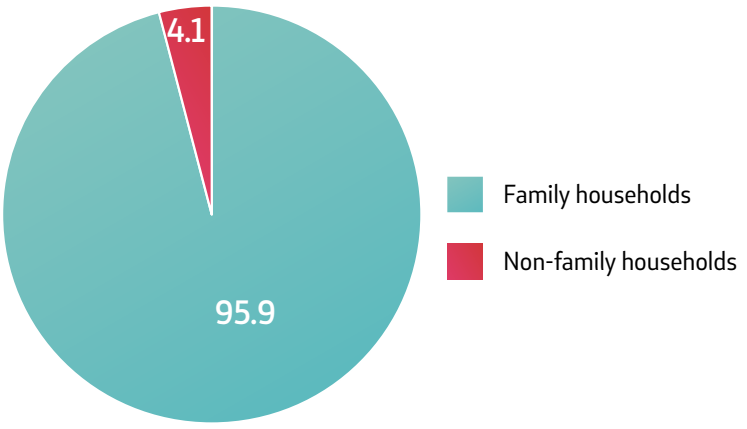


CHART no. 86: Type of households in the Roma settlement

2. DURATION OF RESIDENCE IN THE ROMA SETTLEMENT

According to survey results on duration of residence in the settlement:

➔ 98.6% of household members "have always lived here, from birth";

➔ 2 respondents, i.e. 1.4% "have moved to the settlement", of which 1 respondent has moved from "another settlement in Macedonia" and the other has moved from "another country".

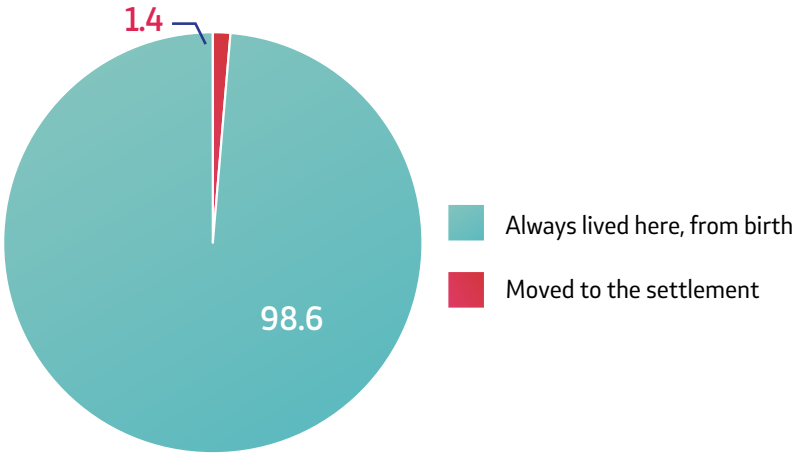


CHART no. 87: Duration of residence in the settlement

3. PRESENT HEALTH STATUS OF HOUSEHOLD MEMBERS

Asked to assess **their own and the health of household members**: 92.6% of respondents reported "good health", 6.8% indicated "neither good nor poor health" and 0.7% reported "poor health".

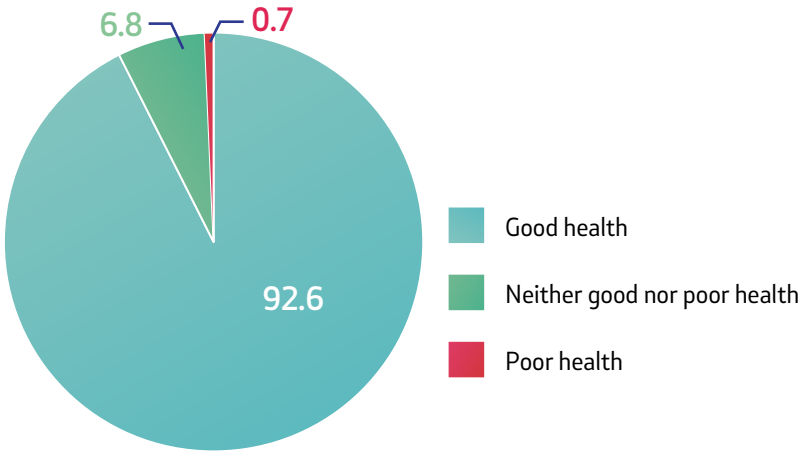


CHART no. 88: Оценка на здравјето на членовите на домаќинството во моментот

Most frequently reported **chronic diseases among household members** include: "diabetes" as indicated by 4% of respondents, "hypertension" - 2%, "asthma" - 0.7% and "stoke" - 0.7%.

High 93.8% of respondents did not report any chronic disease among household members.

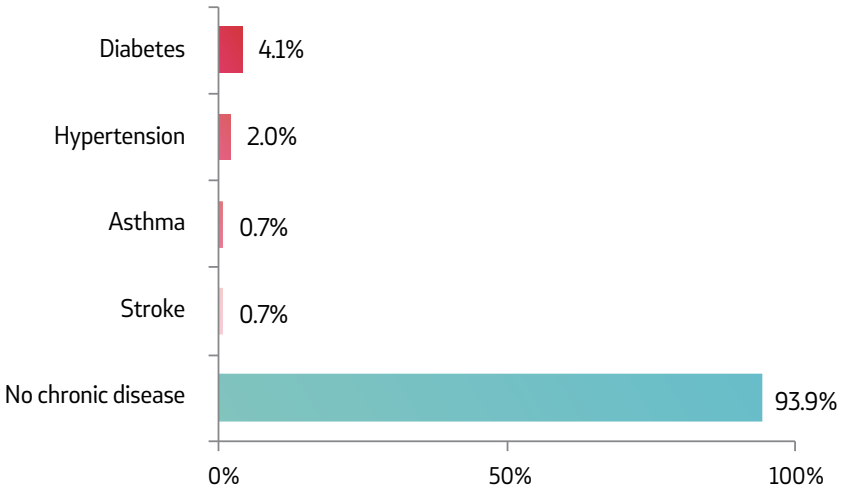


CHART no. 89: Share of reported chronic health conditions/diseases among household members

95.9% of respondents said that, in the last 2 months, members of their household "have not suffered" from health conditions such as cold, cough, running nose, sore throat, difficult breathing, bronchitis, pneumonitis, etc. Among the remaining 4.1% of respondents, 0.7% reported "several instances" of these health conditions, while 3.4% reported "one instance" of these health conditions among their household members in the last 2 months.

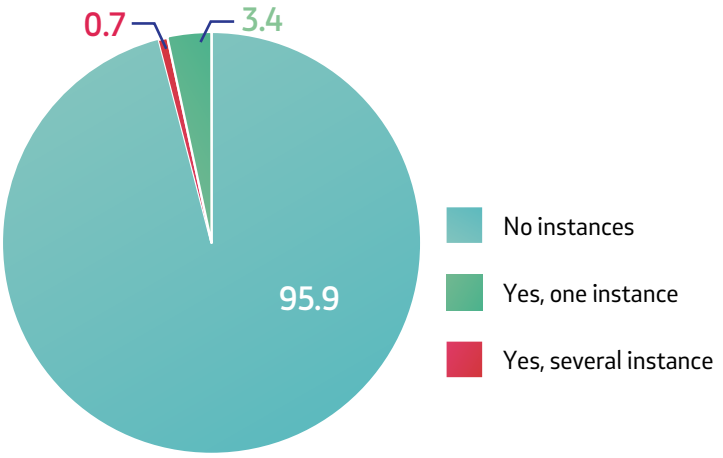


CHART no. 90: Share of reported health conditions such as cold, cough, running nose, sore throat, difficult breathing, bronchitis, pneumonitis, etc. in the last 2 months

96.6% of respondents said that, in the last 2 months, members of their households "have not suffered" from gastrointestinal diseases (vomiting, diarrhoea, stomach pain, etc.). Among the remaining 3.4% of respondents, 0.7% indicated "several instances" and 2.7% indicated "one instance" of these health conditions among their household members in the last 2 months.

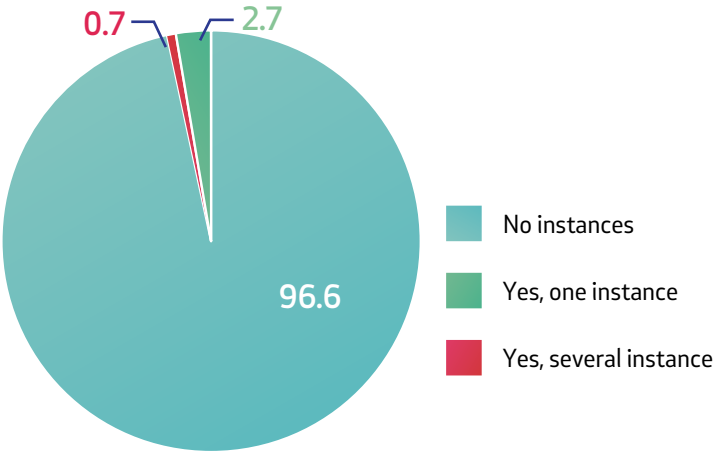


CHART no. 91: Share of reported gastrointestinal diseases (vomiting, diarrhoea, stomach pain, etc.) in the last 2 months

IV.4.3. SPECIFIC ENVIRONMENTAL HEALTH RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

1. HEALTH RISKS CAUSED BY THE CONSTRUCTION QUALITY OF HOUSING UNITS

a) Type and ownership of housing units where households are accommodated

According to the **type of housing unit**, 99.3% of households live in "stand-alone house with construction permit". 1 respondent (0.7%) said his/her household lives in "rented housing unit".

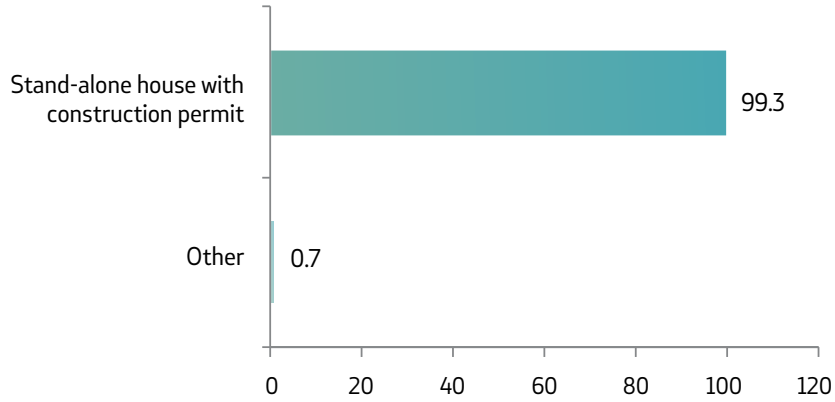


CHART no. 92: Type of housing units where households are accommodated

According to the **number of rooms per housing unit**, 7% of households live in housing unit with "one room", half of them (51%) live in housing unit with "two or two-and-half rooms", while 37% live in housing unit with "three or three-and-half rooms". 4% of households live in housing unit with "four and more rooms".

99.3% of respondents indicated that housing unit is "owned by the respondent or other family member", while only 0.7% of respondents indicated "rented housing unit". No respondents indicated "non-legalized housing unit".

95.3% of respondents indicated that "all members of their household" hold **valid ID cards with current place and address of residence**, while 4.7% indicated only "one household member" in possession of such document. No responses were obtained indicating that no household members have valid ID card with current place and address of residence.

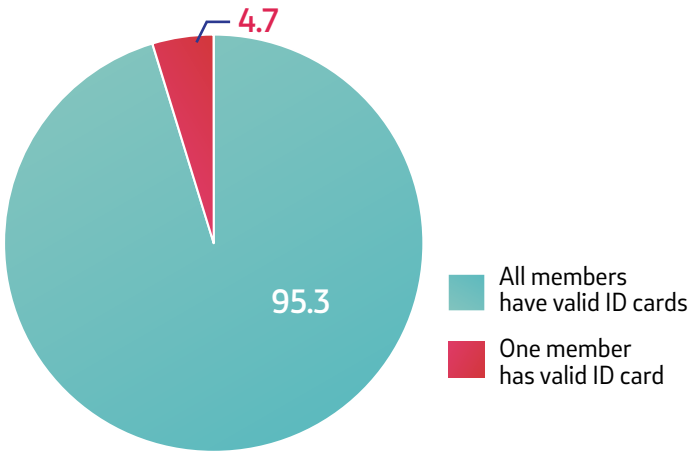


CHART no. 93: Breakdown of households according to the number of members that hold valid ID card with current place and address of residence

b) Construction durability and safety of housing units

As regards the **type of external walls in housing units**, 100% of households indicated "**pre-manufactured walls**", most of which 96 % are made of "cement blocks" and few (4%) are made of "bricks or brick blocks".

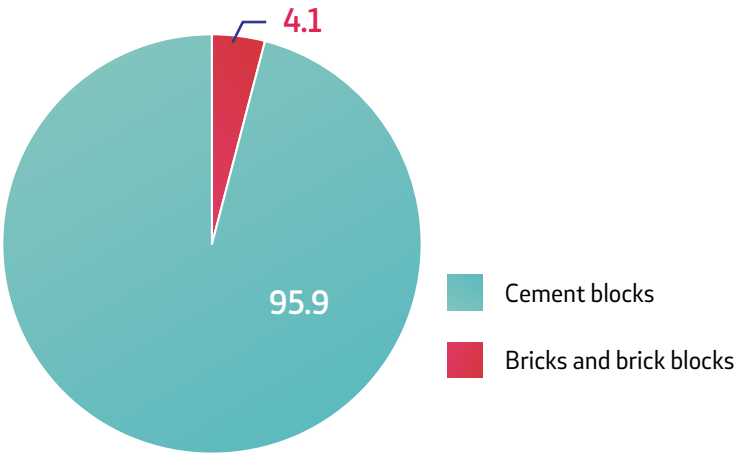


CHART no. 94: Type of external walls in housing units

As regards the **type of roofs**, all households (100%) live in housing unit with "pre-manufactured roof", of which 97% are made of "roofing tiles" and 3% are made of "metal/tin".

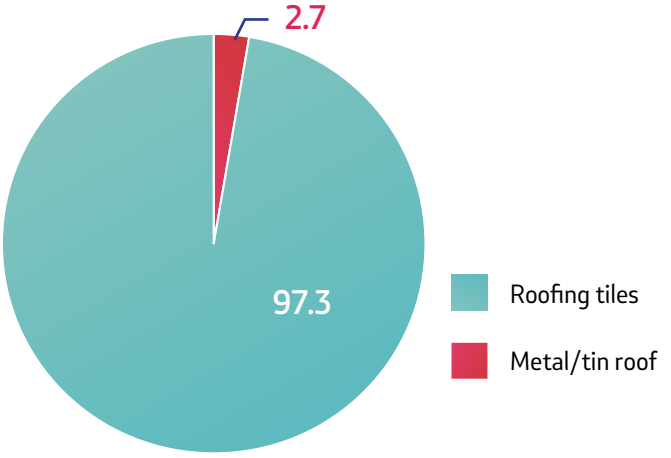


CHART no. 95: Type of roofs in housing units

According to the **type of floors**, all households (100%) live in housing units with "pre-manufactured floor", vast majority of which (82%) are "laminate", 13% are made of "ceramic tiles" and 5% are made of "cement".

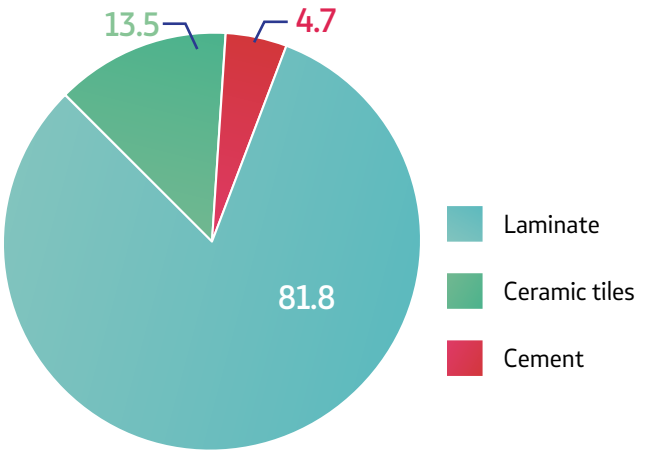


CHART no. 96: Type of floors in housing units

2. HEALTH RISKS CAUSED BY LACK OF BASIC COMMUNAL SERVICES

a) Type of communal services and infrastructure provided in the settlement

Most frequently indicated **communal services and infrastructure** provided in the settlement covered by the survey include: "drinking water supply – water supply network" (99%), "electricity supply" (93%), "waste water discharge - sewage" (80%) and "street lighting" (78%).

Other communal services are marked by significantly low share of responses. 4 of 10 respondents indicated "communal waste collection", while one-fifth of respondents indicated "organized local public transport". One sixth of households live in parts of the settlement where "atmospheric water drains" are provided, as well as "construction and maintenance of local roads" and "maintenance of public hygiene". The least frequently indicated communal service concerns "maintenance of parks, greeneries and recreational areas", which was indicated by only 1% of respondents.

Vast majority of respondents (98.6%) indicated **disposal of solid waste (garbage)** into "household bins that are collected by communal hygiene services", while 1.4% indicated waste disposal directly in "garbage containers". No respondents indicated illegal landfills as the place where they dispose solid waste from their households.

b) Safety of drinking water and sanitary system

All households (100%) indicated "water supply network" as the **main source of drinking water**. Moreover, all respondents (100%) said they have indoor water pipes.

6.8% of households reported "at least one" **interruption in water supply** during the last month, all of which referred to "unavailability of water from the main supply source" as the reason thereof.

The remaining 93.2% of households indicated "sufficient supply of water" in the last month.

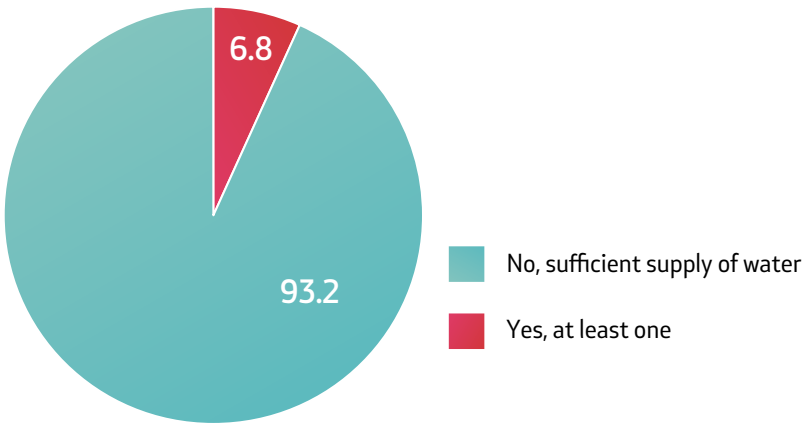


CHART no. 97: Interrupted supply of drinking water in the last month

As regards **main source of water for cooking or washing hands**, all households (100%) indicated "water supply network" with indoor water pipes.

97% of respondents said that household members **most often use** "indoor lavatory", while 3% referred to "outdoor lavatory - in the yard".

12.8% of households use "soap and detergent" for washing hands, while 87.2% of them only have "soap".

Survey results on the **type of toilets** in housing units show that:

→ 99% of households have "**flushing toilet**", of which 98% indicated connection to "sewage pipes", while 1% of households indicated that the toilet is connected to "septic tank";

→ 1% of households have "**non-flushing toilet**", i.e. "covered outhouse toilet".

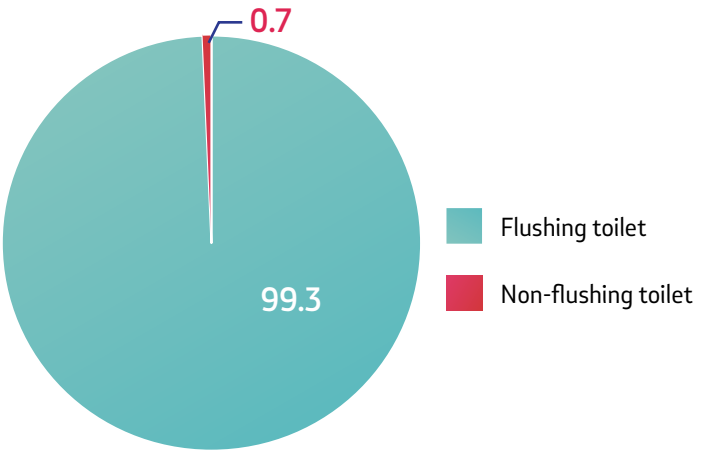


CHART no. 98: Type of toilets in housing units

According to **location of toilets**, 85.8% of households have "indoor toilet" and 14.2% of households have "outdoor toilet - in the yard".

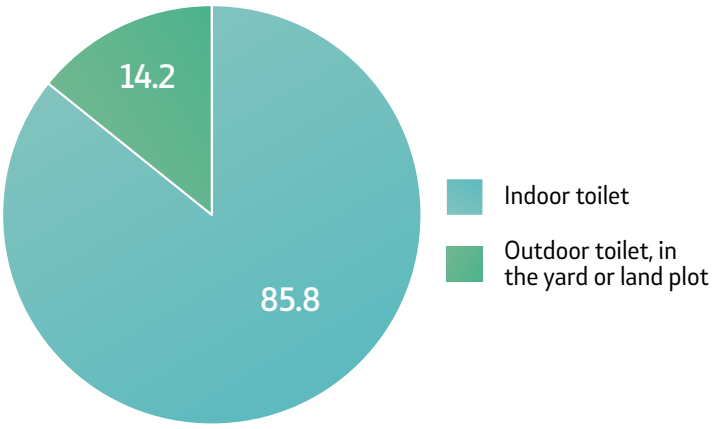


CHART no. 99: Location of toilets in housing units

Vast majority of households (94%) "**do not share**" the toilet with members of other households, while 6% "share" the toilet with "known number of other households".

Households that have **toilets connected to septic tank** (n=2) were asked when the tank was last cleaned, by whom and where was the content disposed. Both respondents indicated that the septic tank "has not been cleaned at all".

c) Energy use in households

All 148 surveyed households (100%) indicated **use of electricity** through "grid connection".

Most households (94.5%) use "electric stoves" for **cooking**, while significantly smaller share of them indicated "solid fuel stove" (4.1%), "gas/LPG stove" (0.7%) or "traditional stove (solid fuel)" (0.7%).

As regards the **type of fuel/energy source** for cooking stoves, most households (84.1%) indicated "electricity", followed by "wood" (4%) and "wood charcoal" (0.7%).

Survey data on **main energy source used by households** are in line with these responses, i.e. 9 of 10 respondents indicated use of electricity as main energy source, while 3.4% referred to wood.

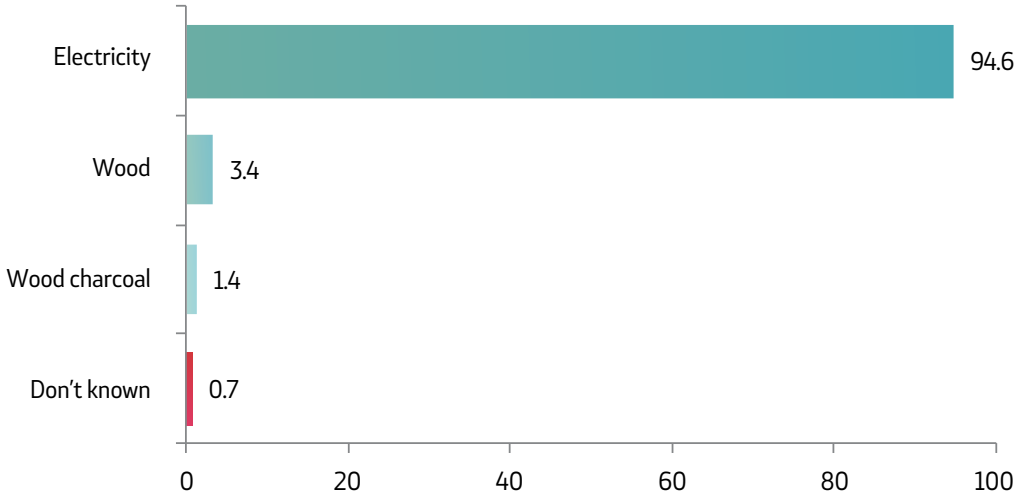


CHART no. 100: Type of fuel or energy source used for cooking stoves

As regards **common place for cooking**, all households (100%) said they usually cook "in the main house", of which 85% indicated "separate room for cooking", while 15% do not have separate room for that purpose.

For the purpose of **space heating**, 93% of households use "factory-made stove", followed by "traditional stove" - 2.7%, "air-conditioner" - 1.4%, and "factory-made space heater" - 3.4%.

Among types **of fuel or energy source used for space heating**, "wood" is the most frequently indicated energy (92%), followed by "electricity" (8%).

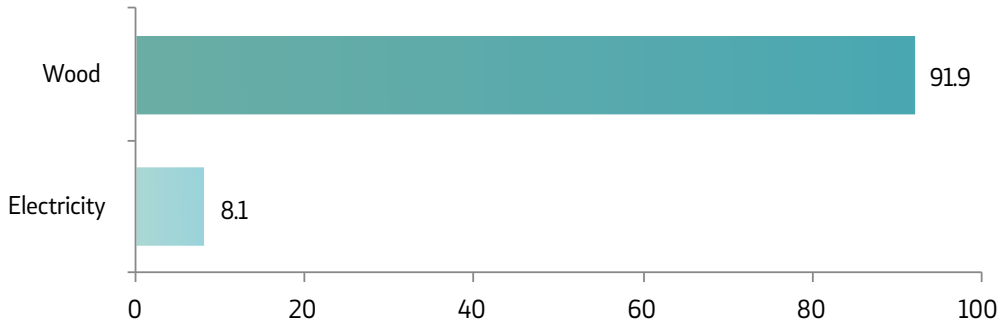


CHART no. 101: Type of fuel or energy source used for space heating

84.5% of households "do not use" **cooling devices**. On the other hand, 8.8% of households use "air-conditioner", while 6.8% use "fan".

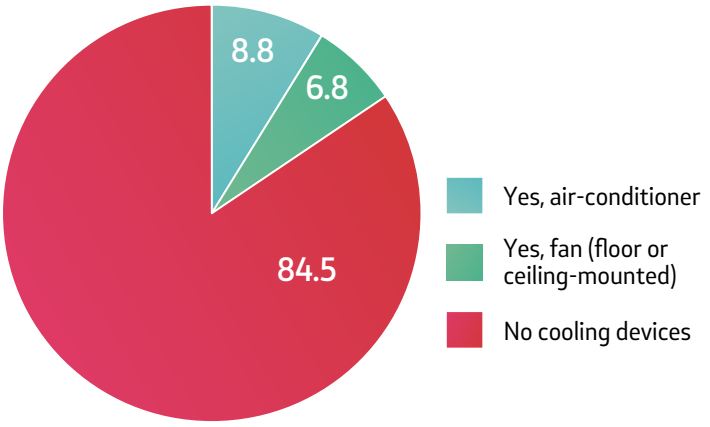


CHART no. 102: Cooling devices used by households

All households (100%) indicated "electricity" as energy source for **night lights**.

3. OTHER HEALTH RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

87.8% of households reported "no smoking" **inside the house**. On the other hand, 0.7% reported "at least one person smoking inside every day", while 11.5% reported that family members "sometimes" smoke cigarettes inside the home.

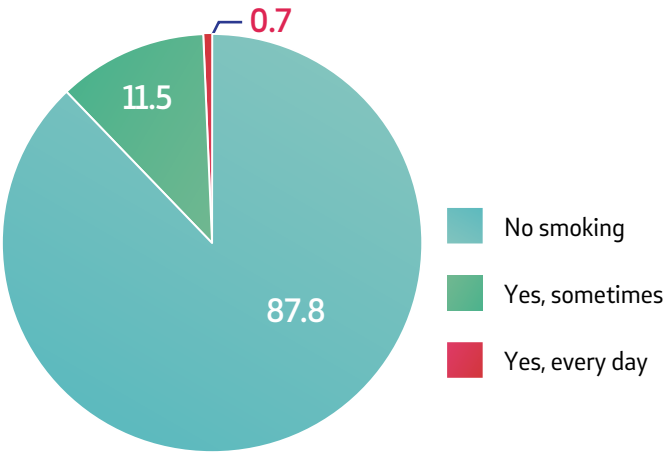


CHART no. 103: Cigarette smoking inside the house by at least one household member

96.6% of households indicated "no humidity or visible mildew" on internal walls in their housing unit. On the other hand, 3.4% of households reported "humidity" on one or more internal walls, while respondents did not refer to "visible mildew" in their housing unit.

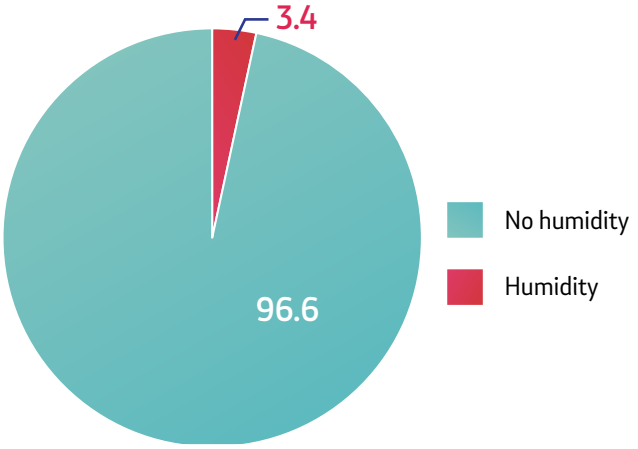


CHART no. 104: Humidity and visible mildew on internal walls of housing units

Asked about **exposure to health risks when performing their current job** such as "direct contact with waste" or "direct contact with waste water", all 148 respondents reported they are not exposed to such risks.

Outdoor work due to the nature of their job on hot summer days when temperatures exceed 37°C was reported by 86% of respondents, of which 0.7% are "always" and 85.1% are "sometimes" exposed to high outdoor temperatures.

14% of respondents indicated "no exposure" to high outdoor temperatures due to the nature of their job.

IV.5. CITY OF DELCHEVO

SECTORAL COVERAGE OF THE RESEARCH:

URBAN COMMUNITY: THERE ARE NO URBAN COMMUNITIES.
→ ROMA SETTLEMENTS:
Smaller parts of the city with Roma population.

Based on previously defined instruments, the survey was conducted by NGO KHAM from Delchevo and covered:

→ **98 respondents** - members of households in the Roma settlement in Delchevo, all of which are Roma. Majority of respondents are men (58%), while women account for 42%. Around one quarter of respondents (26%) are under permanent employment contract, of which 6.2% work in the public sector, 18.6% work in the private sector, and 1.0% are business owners. Around 7% of respondents are freelance or gig workers, 15.3% are housewives, 25.5% are pensioners, and 23.5% are unemployed;

→ **municipal administration employees** who completed the questionnaire for the Municipality of Delchevo;

→ **12 focus group participants** - representatives from the urban community, local NGOs profiled in environmental protection and protection of Roma rights, municipal administration and 2 external experts.

IV.5.1. BASIC INFORMATION ON THE ROMA SETTLEMENT

1. LEGAL STATUS OF THE SETTLEMENTS

According to data provided by the municipal administration about the **legal status of Roma settlements** covered by the survey *(existence of urban/spatial plans for the location):*

→ the settlements are covered by general urban plan, with some areas also covered with detailed urban plan;

→ according to urban planning designations, parts of the location are intended for "housing", "purpose compatible with housing" and "other purpose (non-residential)";

→ the type of green areas in the settlement include:

• ***park*** *- green area exceeding 1ha, used for recreation, walking, entertainment and play;*

• ***green square*** *- green area not exceeding 1ha, used for pedestrian transit, short recreation and play;*
• ***green corridor*** *- green area along traffic lanes and pedestrian and bicycle tracks (mid-section greenery on boulevards, green fencing, and similar);*
• ***non-arranged greenery*** *- non-arranged areas intended for public greenery according to urban plans (abandoned surface ditches, landfills, lands);*
• ***line of trees*** *- green formation lining traffic roads*

2. SAFETY OF SETTLEMENT LOCATION IN RESPECT TO ENVIRONMENTAL HEALTH RISKS

According to data provided by the municipal administration about **exposure to hazardous environmental conditions and related health risks:**

➔ the settlements ARE WITHIN AN AREA susceptible to **natural disasters**:
- river flooding;
- heavy rains;
- earthquake;

➔ the settlements ARE NOT IN VICINITY of **hazardous environmental conditions** *(per type - substandard landfills and rubbish dumpsites, abandoned industrial facilities, mines, etc.);*

➔ the settlements ARE EXPOSED to several **hazardous housing conditions:**
- housing near significant source of noise and vibrations that are result of business and other activities, including noise emitted by transport means: road, railway, and air traffic, and by industrial activity sites, causing discomfort and disturbance;
- possible sources of technical and technology disasters with hazardous substances that could cause radiological, chemical and biological contamination;
- space heating by burning solid waste;
- work at rubbish dumpsites, with garbage containers, etc., without adequate protection (partially).

Survey results on presence of **hazardous environmental conditions** show that:

➔ 93% of respondents said that the settlement IS NOT IN VICINITY of hazardous environmental conditions;

➔ 7% of respondents said that the settlement IS IN VICINITY of "dumpsite for communal waste and constriction debris not collected by relevant communal enterprises" (at distance of 2 kilometres).

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IV.5.2. BASIC CHARACTERISTICS OF ROMA HOUSEHOLDS COVERED BY THE SURVEY

1. TYPE OF HOUSEHOLDS IN ROMA SETTLEMENTS

As regards the type of households in Roma settlement, survey data show that:

➔ 84% are "family households" *(households comprised of one, two or more families),* of which 90% are "single-family households" while 10% are households with "two or more families";

➔ 16% are "non-family households" *(comprised of one, two or more non-related persons), all of which (100%)* are "single-person households".

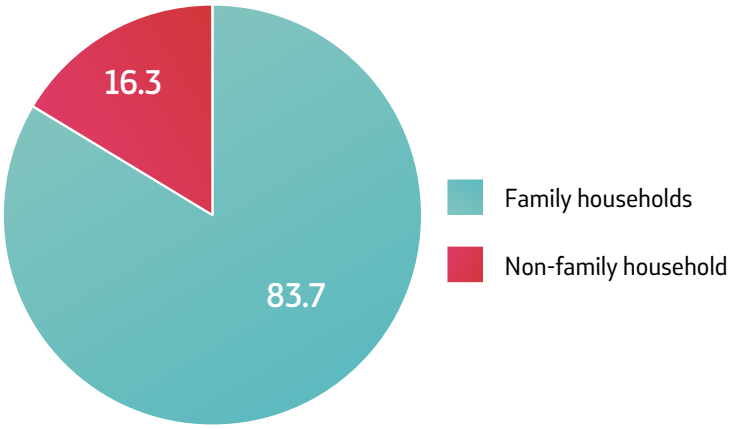


CHART no. 105: Type of households in Roma settlements

2. DURATION OF RESIDENCE IN ROMA SETTLEMENTS

As regards duration of residence in Roma settlements, survey results show that:

➔ 67.3% of household members "have always lived here, from birth";

➔ 32.7% "have moved to the settlement", of which 91% have moved from "another settlement in Macedonia", while 9% have moved from "another country".

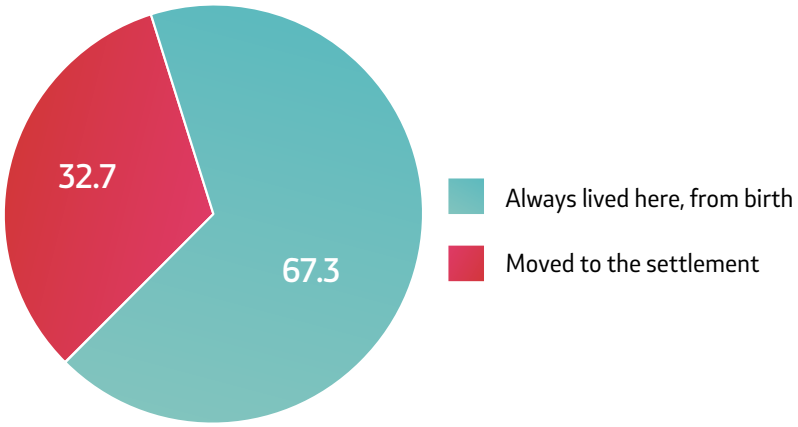


CHART no. 106: Duration of residence in Roma settlements

3. PRESENT HEALTH STATUS OF HOUSEHOLD MEMBERS

Asked to assess **their own and the health of household members**, 50% of respondents reported "good health", 36.7% indicated "neither good nor poor health", while 10.2% reported "poor health".

3 respondents (3.1%) were unable to assess their own and the health of household members at the time of surveying.

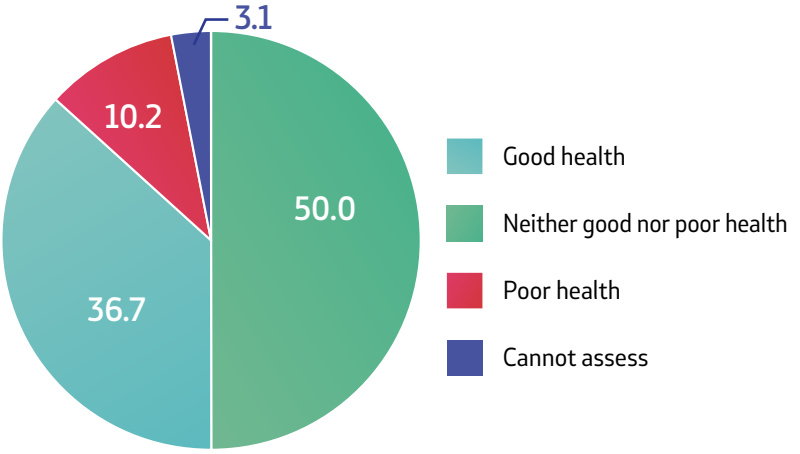


CHART no. 107: Assessment of present health status among household members

As regards **chronic diseases among household members**, 52% of respondents indicated "hypertension", 33.7% - "heart disease", 21.4% - "diabetes", 15.3% - "heart attack"; 10.2% - "chronic pulmonary disease"; 8.2% - "chronic kidney disease"; 7.1% - "asthma"; 4.1% - "stoke" and 2% - "chronic liver disease".

Almost half of respondents (46%) did not report any chronic diseases among household members.

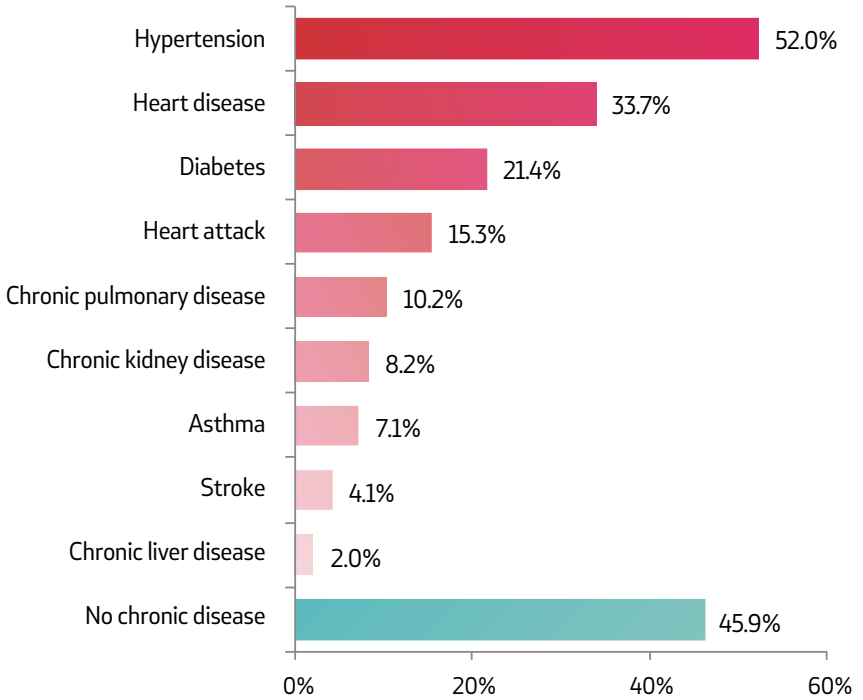


CHART no. 108: Share of reported chronic health conditions/diseases among household members

40.8% of respondents said that, in the last 2 months, members of their household "have not suffered" from health conditions such as **cold, cough, running nose, sore throat, difficulty breathing, bronchitis, pneumonitis**, etc. On the other hand, 34.7% of respondents indicated "several instances" and 23.5% indicated "one instance" of these health conditions among household members.

1% of respondents did not answer this question.

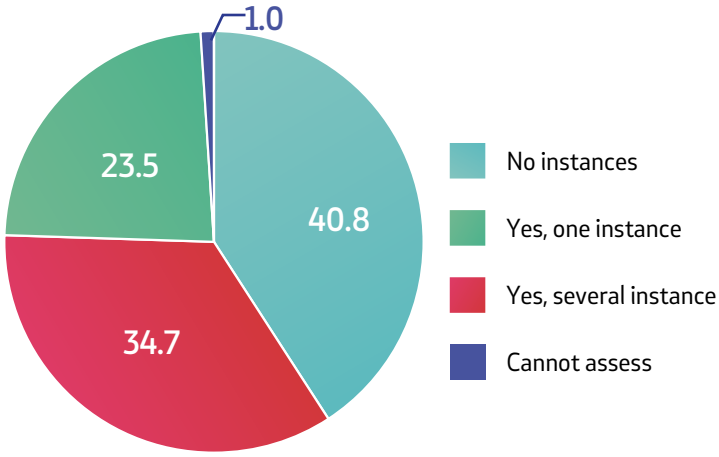


CHART no. 109: Share of reported health conditions such as cold, cough, running nose, sore throat, difficulty breathing, bronchitis, pneumonitis, etc. in the last 2 months

76.6% of respondents said that, in the last 2 months, members of their household "have not suffered" from **gastrointestinal diseases** (vomiting, diarrhoea, stomach pain, etc.) On the other hand, 5.1% of respondents indicated "several instances" and 15.3% indicated "one instance" of these health conditions among household members.

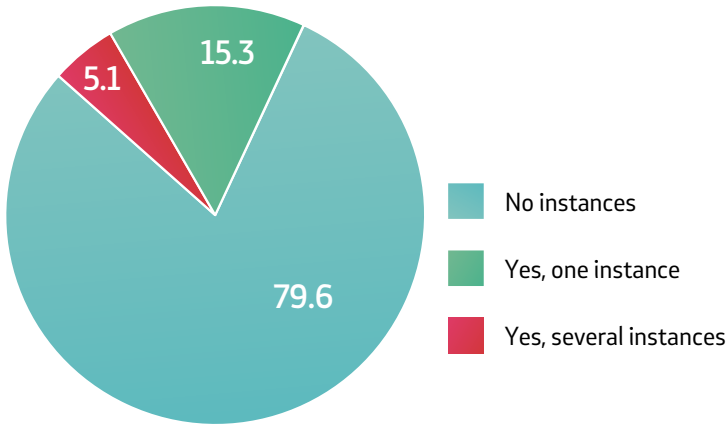


CHART no. 110: Share of reported gastrointestinal diseases (vomiting, diarrhoea, stomach pain, etc.) in the last 2 months

IV.5.3. SPECIFIC ENVIRONMENTAL RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

1. HEALTH RISKS CAUSED BY THE CONSTRUCTION QUALITY OF HOUSING UNITS

a) Type and ownership status of housing units where households are accommodated

As regards the **type of housing units**, survey results shows that:

- ➜ 86.7% of households live in "stand-alone house with construction permit";
- ➜ 4.1% of households live "stand-alone house without construction permit";
- ➜ 1 household lives in "residential building with two or more housing units, with construction permit";
- ➜ 3 households live in "rented housing unit";
- ➜ 5 households indicated other type of housing unit.

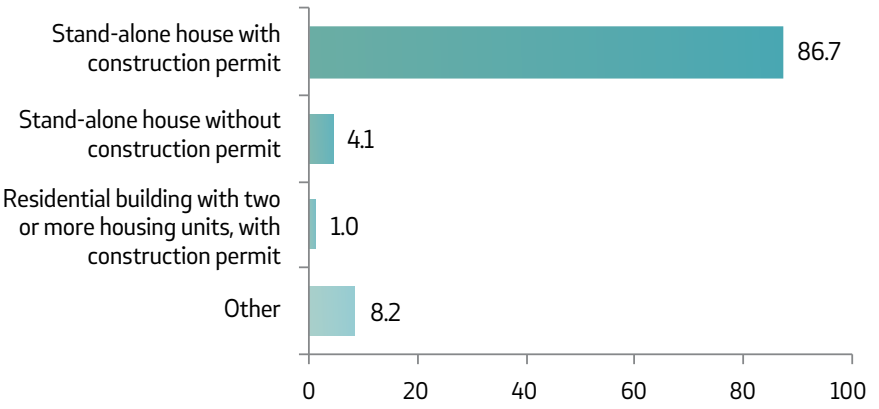


CHART no. 111: Type of housing units where households are accommodated

According to **the number of rooms per housing unit**, 13% of households live in "flatlet or housing unit with one room", 52% live in housing units with "two or two-and-half rooms", while 40% of households live in housing units with "three or three-and-half rooms". 19 respondents indicated "four or more rooms" in their housing unit.

69.4% of households live in housing units "owned by the respondent", while 20% live in housing units "owned by other family member". Less than 10% of households live in "rented housing unit".

98% of respondents indicated that "all household members" hold **valid ID cards with current place and address of residence**, while 2% indicated "one household member" with valid personal identification document.

There are no responses indicating that no household members have valid document for personal identification.

b) Construction durability and safety of housing units

According to the **type of external walls**, all households (100%) live in housing units with "**pre-manufactured walls**", of which 56% are made of "bricks and brick blocks", 28% of are made of "cement blocks" and 16% are made of "covered mudbricks".

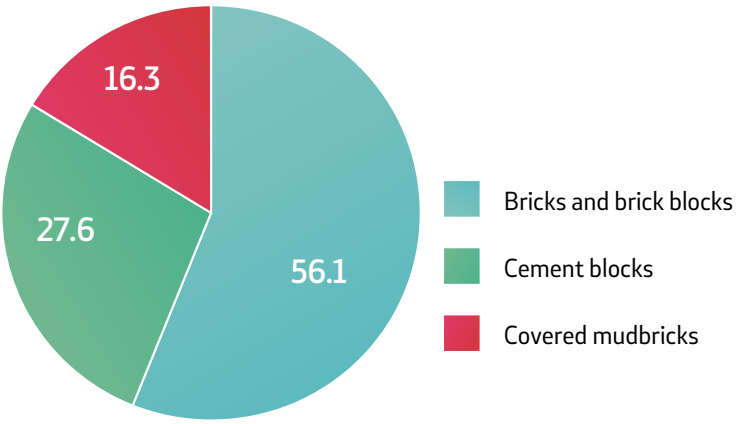


CHART no. 112: Type of pre-manufactured external walls in housing units

As regards the **type of roofs**, survey results show that:

→ 99% of housing units have "**pre-manufactured roof**", most of which (91%) are made of "roofing tiles", 1 roof is made of "calamine/fibre cement", two roofs are made of "cement" and 5% are made of "asbestos cement";

→ 1 housing unit has "**natural roof**" made of "straw, leaves and grass".

According to the **type of floors**, all housing units (100%) have "pre-manufactured floor", of which 71.4% are made of "laminate", 19.4% are made of "parquet or coated wood", 2% are made of "ceramic tiles" and 7.1% are "carpets".

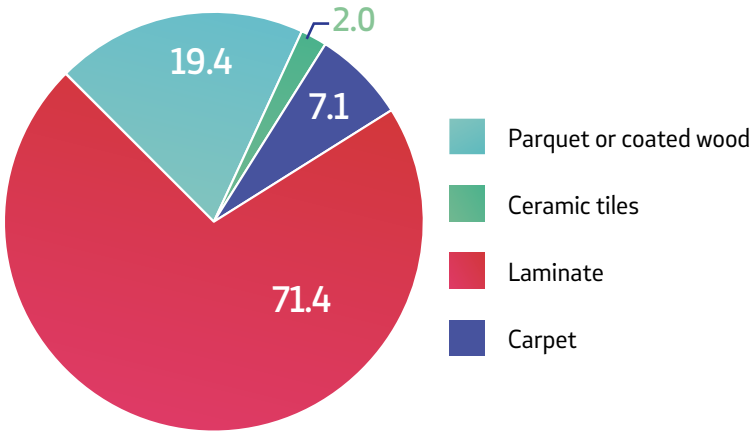


CHART no. 113: Type of floors in housing units

2. HEALTH RISKS CAUSED BY LACK OF BASIC COMMUNAL SERVICES AND INFRASTRUCTURE

a) Type of communal services and infrastructure provided in the settlement

Most frequently indicated **communal services and infrastructure** provided in settlements include: "supply of drinking water – water supply network" (99%), "waste water discharge - sewage" (94%), "electricity supply" (92%), "communal waste collection" (87%) and "street lighting" (86.9%). 4 of 10 respondents indicated provision of "organized local public transport".

Other communal services are represented by insignificant number of responses. More precisely, only 1 respondent indicated "construction and maintenance of traffic signs" and "maintenance of public hygiene", but no respondents indicated provision of "atmospheric water drains", "construction and maintenance of local roads", "maintenance of parks, greeneries and recreational areas", "public transport" and "public parking space" in Roma-populated settlements in the Municipality of Delchevo.

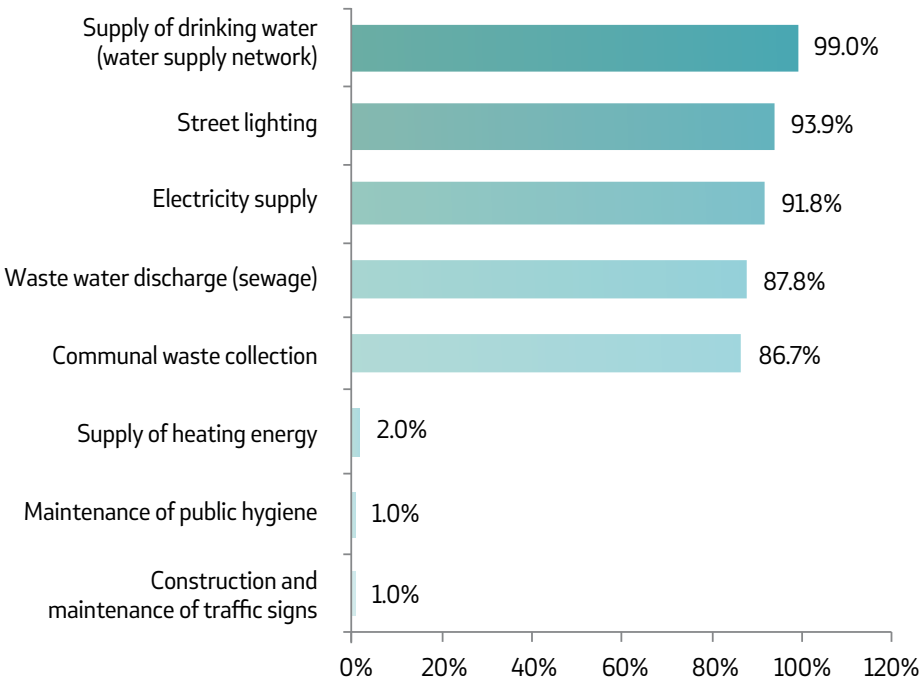


CHART no. 114: Communal services and infrastructure provided in the settlements

Majority of respondents (81.6%) reported **disposal of solid waste (garbage)** into "household bins that are collected by communal hygiene services", while 13.3% of households dispose their waste directly into "garbage containers".

Around 5.1% of households dispose of their waste at "illegal landfill".

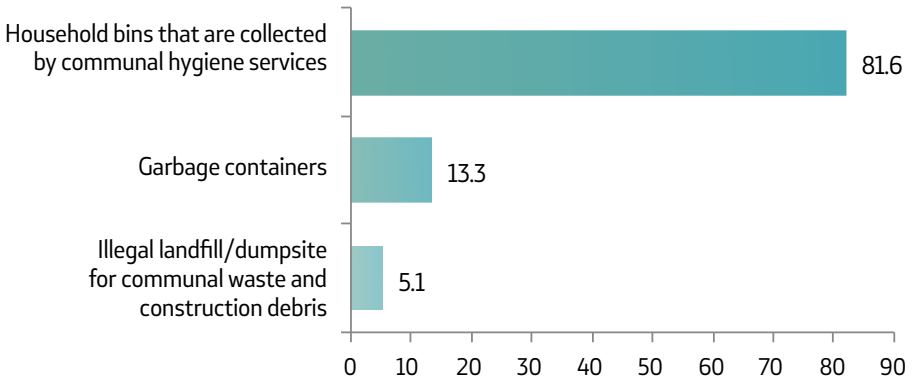


CHART no. 115: Places for disposal of household solid waste

b) Safety of drinking water and sanitary system

For 57% of households, "water supply network" is the **main source of drinking water**. Among them, 95% have "indoor water pipes", while 5% have "outdoor water pipes - in the yard or land plot".

It should be noted that 38% of respondents indicated "bottled water" as main source of drinking water in their household.

Drinking water from "protected springs" was reported by only 5% of respondents in the Municipality of Delchevo.

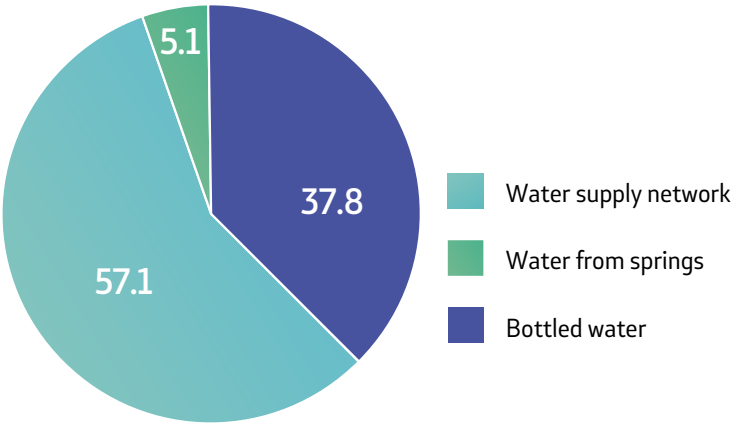


CHART no. 116: Main source of drinking water for household members

8.2% of households reported "at least one instance" of **interrupted water supply** during the last month. All respondents who reported interrupted water supply also indicated that the main reason was "unavailability of water from the main source".

The remaining 41.8% of households indicated "sufficient supply of water" in the last month.

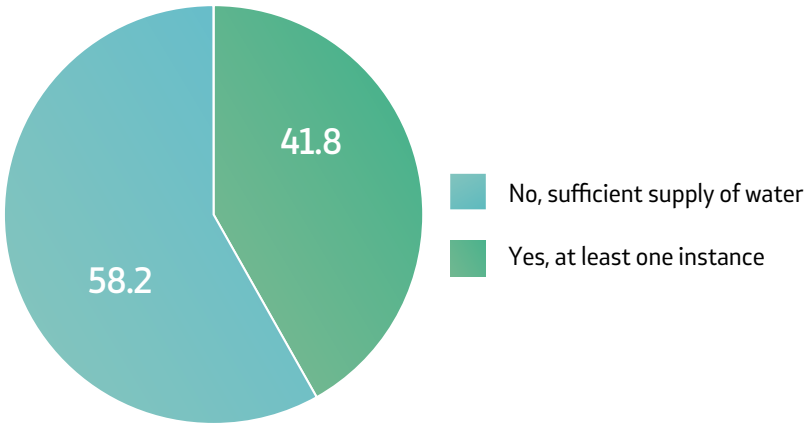


CHART no. 117: Interrupted supply of drinking water in the last month

For the vast majority of households (99%), "water supply network" is the **main source of water for cooking and washing hands**, most often with "indoor water pipes" (93%) and rarely with "outdoor water pipes – in the yard or land plot" (7%).

Only 1 respondent (1%) reported that his/her household uses "bottled water" for cooking and washing hands.

92% of households reported availability of "indoor lavatory" for washing hands, while 8% referred to "outdoor lavatory - in the yard or land plot".

9% of households use "soap and detergent" for washing hands, 3% use only "detergent", while 83% of households use only "soap". Almost 6% of households do not use neither soap nor detergent for washing hands.

Members of all households (100%) have soap or liquid soap for washing hands.

As regards the **type of toilets**, survey data show that:

→ „95% of housing units have "**flushing toilet**". In 96% of these cases, toilets are connected to "sewage pipes", while 4% indicted "unknown place", which means that respondents are uncertain where toilet water is discharged;

→ „5% of housing units have "**non-flushing toilet**", all of which are "outhouse toilets -uncovered/open septic tank".

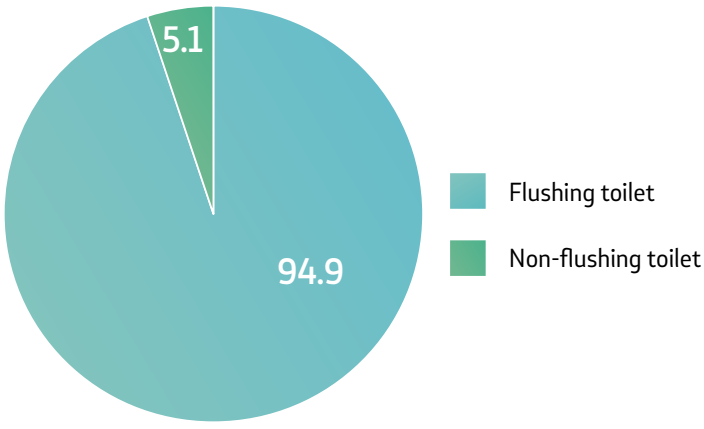


CHART no. 118: Type of toilets in housing units

According to **location of toilets**, 86% of housing units have "indoor toilets", while the remaining 14% have "outdoor toilets -in the yard".

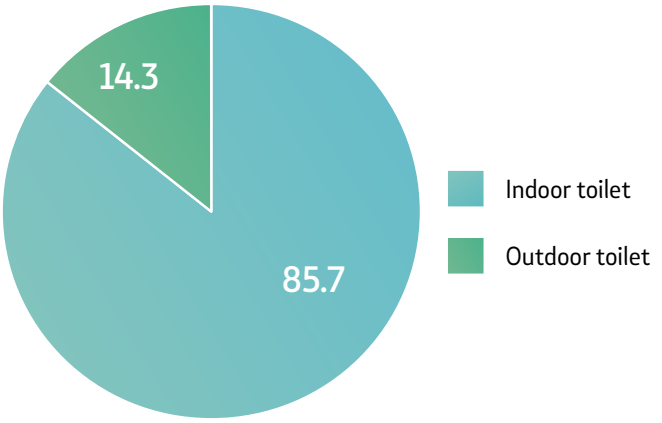


CHART no. 119: Place of toilet in housing units

Vast majority of households (95%) "**do not share**" the toilet with members of other households and 5% "**share**" their toilets, of which 94% indicated shared toilet with "known number of households", while 6 households indicated use of "facilities open to the general public" (6%).

On the question about the last time the septic tank was cleaned, all 5 respondents who reported non-flushing toilets (outhouse) said that the septic tank has not been cleaned at all.

c) Energy use in households

All 98 households covered by the survey (100%) use electricity via "grid connection".

As regards cooking devices, households reported use of "electric stove" (51%), "liquid gas stove" (38%), "solid fuel stove" (8%), "combined stove" (1%) and "open fireplace" (2%). Less than 1% of households indicated other type of cooking stoves.

94% of households reported their housing units have "chimney", while 10% indicated "no chimney".

Types of **fuel or energy source** used by cooking stoves include: "electricity" (50%), "petrol/diesel" (38%) and small share of households (8%) indicated "wood".

These data are in line with responses obtained on main source of energy used in households, whereby half of respondents reported use of electricity, while 37% use liquified petroleum gas.

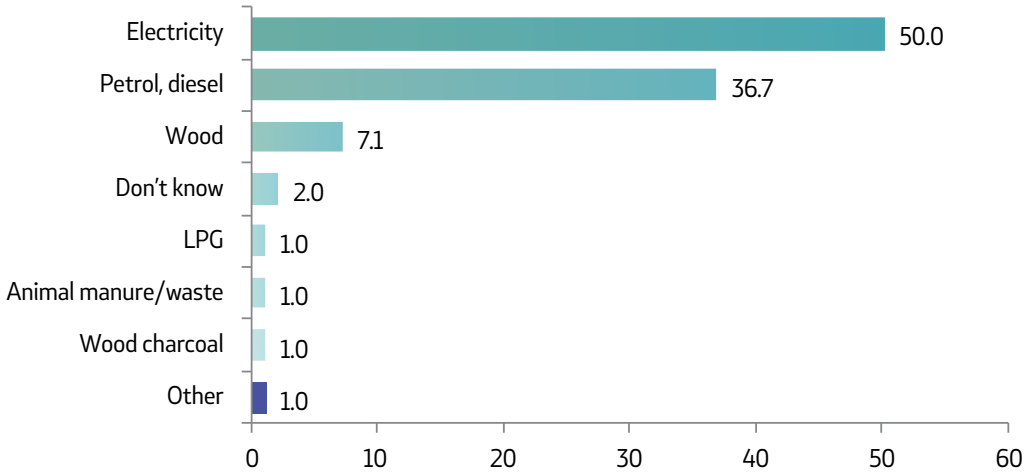


CHART no. 120: Type of fuel or energy source used for cooking stoves

As regards **common place for cooking**, 95% of households usually cook "in the main house", of which 46% also indicated "separate room for cooking", while 49% indicated "no separate room" and 5% of household cook outside, i.e. "on the porch or covered anteroom".

For the purpose **space heating**, two-thirds of households use "factory-made stove", while almost one-fifth uses "electric panels or radiators". Use of "air-conditioner" was indicated by 4% of households, while 3.1% reported "space heaters" and 1 household indicated "thermal heater". 1 respondent referred to "traditional stove" as main source of space heating in the household.

Most frequently indicated **type of fuel and energy source for space heating** are "wood" (76%) and "processed biomass (pellets)" (17.3%). Only 7% of households use "electricity" as energy source for space heating.

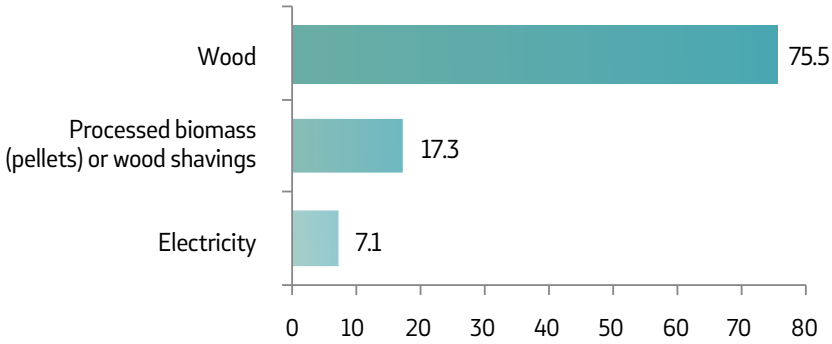


CHART no. 121: Type of fuel or energy source for space heating

Around 75.5% of households "do not use" **cooling devices**. Among households that have cooling devices, 10.2% reported "air-conditioner", while 14.3% indicated "fan (floor or ceiling-mounted".

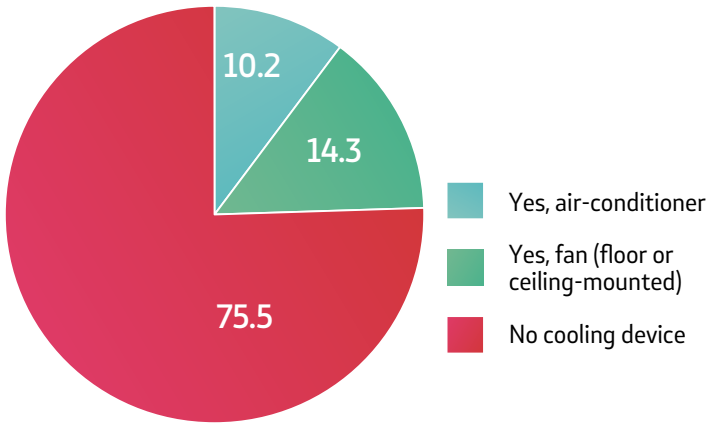


CHART no. 122: Cooling devices used by households

96 from total of 98 respondents (98%) reported use of "electricity" for **night lights**, 1 household uses only "wood" and 1 household indicated "other method of lighting".

3. OTHER HEALTH RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

67.3% of households indicated "no smoking" **inside the house**, while 21.4% reported that "at least one person smokes inside every day" and 11.2% indicated that household members "sometimes" smoke cigarettes inside the house.

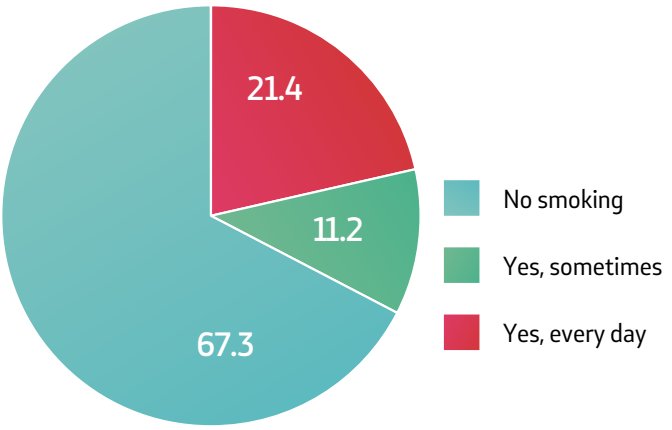


CHART no. 123: Cigarette smoking inside the house by at least one person

72% of households reported **humidity or visible mildew** on internal walls in their housing unit. On the other hand, 22% of households reported "humidity" on one or several internal walls and 5% of households indicated "humidity and visible mildew".

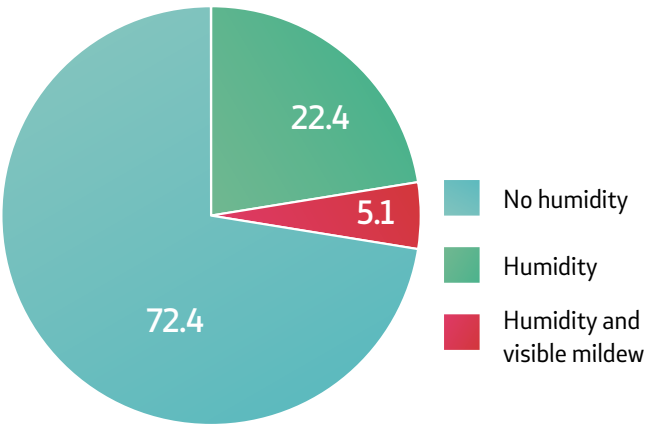


CHART no. 124: Humidity and mildew on internal walls of housing units

Among total of 98 surveyed respondents, 2% reported **exposure to health risks when performing their current job** in the form of "direct contact with waste". No respondents indicated "exposure to smoke" or "direct contact with waste water (sewage)".

Outdoor work due to the nature of their job even on hot summer days when temperatures exceed 37°C was reported by 41% of respondents, of which 6% are "always" and 35% are "sometimes" exposed to high outdoor temperatures.

On the other hand, 59% of respondents said they are "never" exposed to high outdoor temperatures due to the nature of their job

IV.6. VILLAGE CRNIK, MUNICIPALITY OF PEHCHEVO

SECTOR COVERAGE OF THE RESEARCH:

LOCAL COMMUNITY: CRNIK
ROMA SETTLEMENT:
→ CRNIK

Based on previously defined instruments, the survey was conducted by NGO KHAM from Delchevo and covered:

→ **54 respondents** – members of Roma households in village Crnik and residents of Pehchevo, all members of the Roma community. Majority of respondents are men (51%) while women account for 49%. Around 41% of respondents are under permanent employment contract, of which 28% work in the public sector, while 13% work in the private sector. Housewives account for 4%, pensioners - 11% and high 43% of surveyed respondents are unemployed;

→ **municipal administration employees** who completed the questionnaire for the Municipality of Pehchevo;

→ **12 focus group participants** - representatives from urban communities, local NGOs profiled in environmental protection and protection of Roma rights, municipal administration and 2 external experts.

IV.6.1. BASIC INFORMATION ON THE ROMA SETTLEMENT

1. 1. LEGAL STATUS OF THE SETTLEMENT

According to data provided by the municipal administration about the **legal status of Roma settlements** covered by the survey *(existence of urban/spatial plans for the location):*

→ village Crnik, where the Roma settlement is located, is categorized as "mountainous, densely populated village" in the Municipality of Pehchevo;

→ the entire settlement (100%) is covered with urban plan for village;

→ land designation in the plan is "housing";

→ the settlement includes urban greenery such as "non-arranged green areas intended for public greenery according to the urban plan".

2. SAFETY OF SETTLEMENT LOCATION IN RESPECT TO ENVIRONMENTAL HEALTH RISKS

According to data provided by the municipal administration in respect to **hazardous environmental conditions and related health risks:**

→ the settlement IS WITHIN AN AREA susceptible to **natural diseases**:
- land-sliding *(mudslide, rockslide, scree and types of unstable terrain);*

→ the settlement IS NOT IN VICINITY of **hazardous environmental conditions** *(per type - substandard landfills and rubbish dumpsites, abandoned industrial facilities, mines, etc.);*

→ the settlement IS NOT EXPOSED to **hazardous housing conditions** *(such as polluted areas, reliance on untreated and contaminated water sources, exposure to toxic emissions, electromagnetic radiation, etc.).*

As regards **hazardous environmental conditions,** survey results show that:

→ 98% of respondents said that the settlement IS NOT IN VICINITY of hazardous environmental conditions (such as substandard landfills and rubbish dumpsites, abandoned industrial facilities, mines, etc.);

→ 1 respondent referred to "illegal dumpsite for solid communal waste" located at distance of 2 kilometres from his/her household.

IV.6.2. BASIC CHARACTERISTICS OF ROMA HOUSEHOLDS COVERED BY THE SURVEY

1. TYPE OF HOUSEHOLDS IN THE ROMA SETTLEMENT

As regards the **type of households** in the Roma settlement:

→ 87% are "family households" (comprised of one, two or more families), of which 89% are "single-family households", while 11% are households with "two or more families";

→ 13% are "non-family households" (comprised of one, two or more non-related persons), all of which are "single-person households".

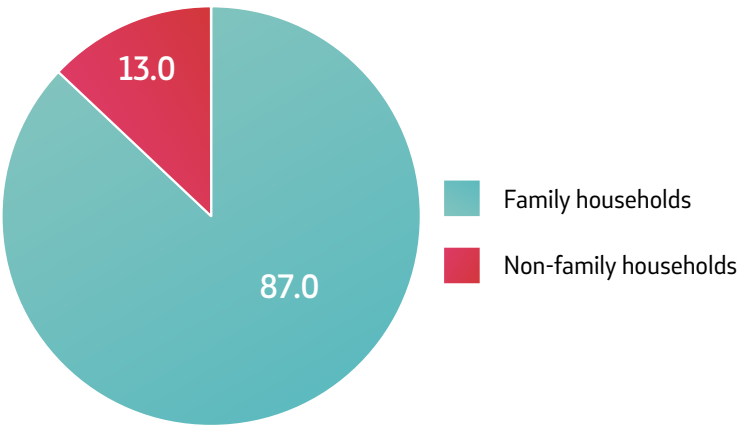


CHART no. 125: Type of households in the Roma settlement

2. DURATION OF RESIDENCE IN THE ROMA SETTLEMENT

As regards **duration of residence**, survey results show that:

→ 92.6% of respondents "have always lived here, from birth";

→ 7.4% of respondents "have moved to the settlement", of which 3 respondents have moved from "another settlement in Macedonia" and 1 respondent has moved from "another country".

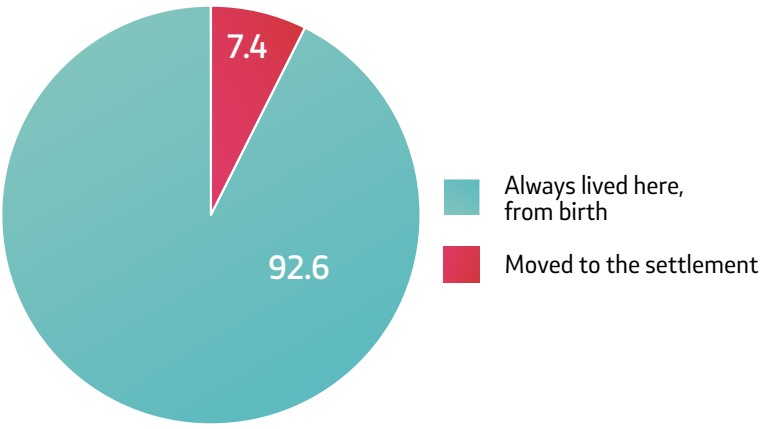


CHART no. 126: Duration of residence in the settlement

3. PRESENT HEALTH STATUS OF HOUSEHOLD MEMBERS

Asked to assess **their own and the health of household members**: 48.1% of respondents reported "good health", 40.7% indicated "neither good nor poor health", while 9.3% reported "poor health".

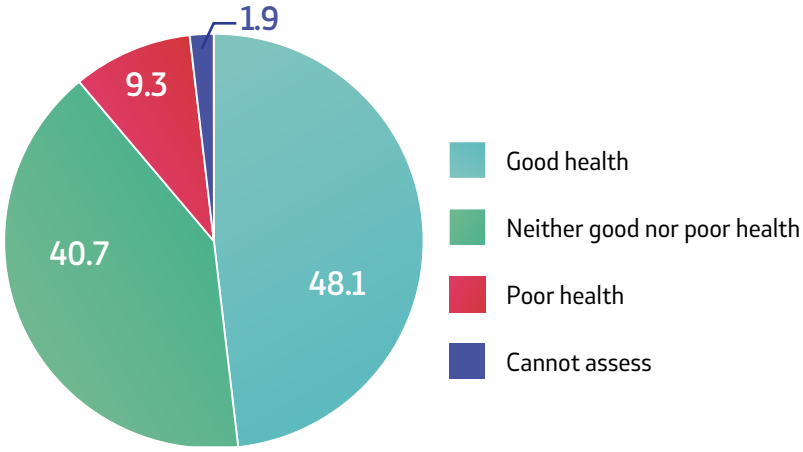


CHART no. 127: Assessment of present health status among household members

Most frequently reported **chronic diseases among household members** include: "hypertension" as indicated by 27.8% of respondents, "diabetes" - 11.1%, "heart disease" - 5.6%, and 1.9% of them reported that household members suffer from "heart attack".

Almost two-thirds of respondents (64.8%) did not report any chronic diseases among household members.

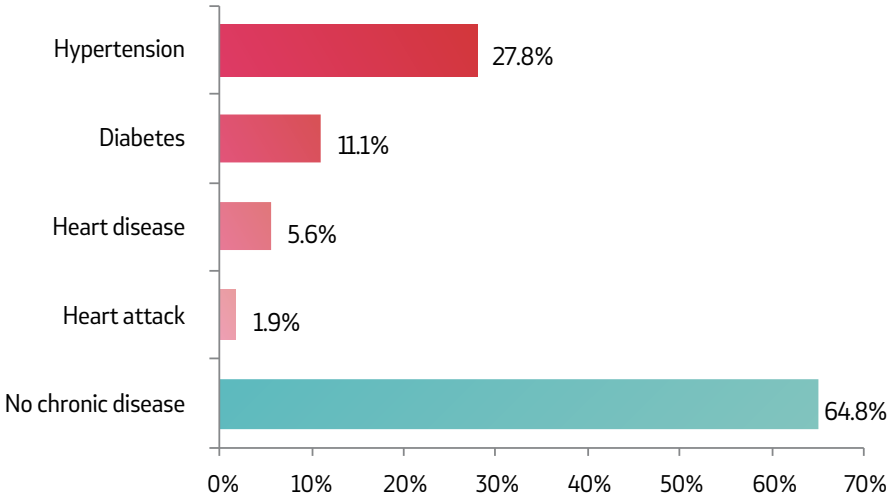


CHART no. 128: Share of reported chronic health conditions/diseases among household members

35.2% of respondents said that, in the last 2 months, members of their household "have not suffered" from health conditions such as **cold, cough, running nose, sore throat, difficult breathing, bronchitis, pneumoniti**s, etc. On the other hand, 24.1% of respondents indicated "several instances" and 38.9% of respondents indicated "one instance" of these health conditions among household members.

1 respondent did not answer this question (1.9%).

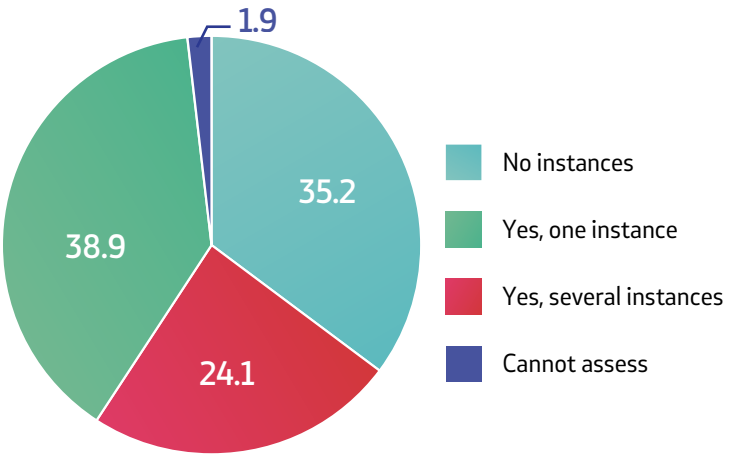


CHART no. 129: Share of reported health conditions such cold, cough, running nose, sore throat, difficult breathing, bronchitis, pneumonitis, etc. in the last 2 months

63% of respondents said that, in the last 2 months, members of their households "have not suffered" from **gastrointestinal diseases** (vomiting, diarrhoea, stomach pain, etc.). On the other hand, 3.6% of respondents reported "several instances" and 31.5% reported "one instance" of these health conditions among household members.

1 respondent was unable to answer this question, representing 1.9% of the surveyed population.

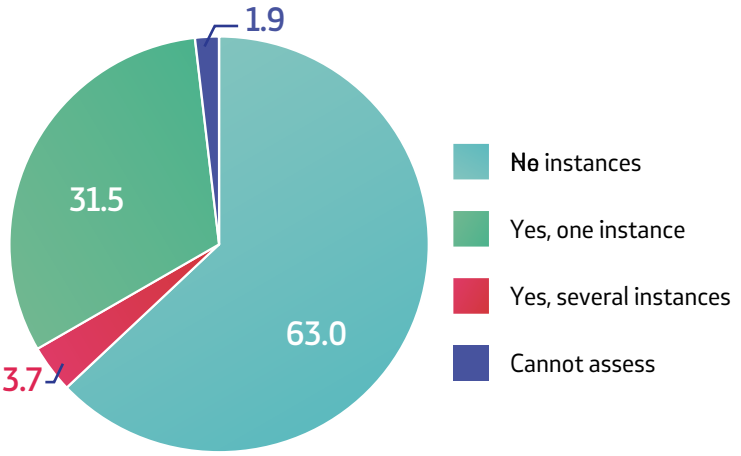


CHART no. 130: Share of reported gastrointestinal diseases (vomiting, diarrhoea, stomach pain, etc.) in the last 2 months

IV.6.3. SPECIFIC ENVIRONMENTAL HEALTH RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

1. HEALTH RISKS CAUSED BY THE CONSTRUCTION QUALITY OF HOUSING UNITS

a) Type and ownership status of housing units where households are accommodated

According to the **type of housing units**, 74% of households live in "stand-alone house with construction permit", while the remaining 26% live in "stand-alone house without construction permit".

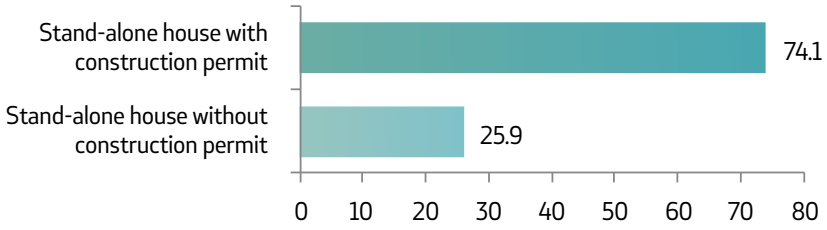


CHART no. 131: Type of housing units where households are accommodated

As regards **the number of rooms per housing unit**, 11% of households live in "single-room housing unit", 4 out of 10 households (41%) live in housing unit with "two or two-and-half rooms", while 35% of households live in housing unit with "three or three-and-half rooms". 13% of households reported housing unit with "four or more rooms".

In respect to **ownership of housing units**, majority of households (72%) live in housing unit "owned by the respondent or other family member", while 28% of households live in "rented housing unit".

98% of respondents indicated that "all household members" hold **valid ID cards with current place and address of residence**. Only 1 respondent (2%) indicated "one household member" in possession of such document for personal identification.

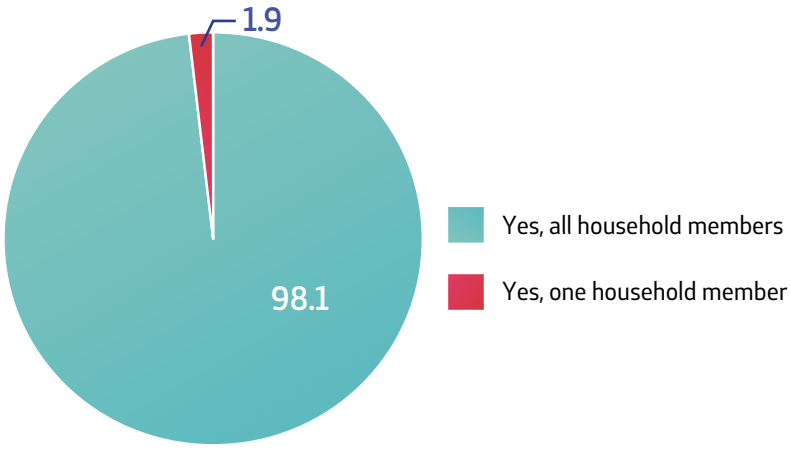


CHART no. 132: Possession of valid ID card with current place and address of residence

b) Durability of construction and safety of housing units

As regards **the type of external walls**, survey results show that:

- ➔ 94% of housing units have "**pre-manufactured walls**", of which 75% are made of "bricks and brick blocks", while 25% are made of "cement blocks";
- ➔ 4% of housing units have "**natural walls**" made of "mud (clay)";
- ➔ 2% of housing units have "**primitive walls**" made of "stone and mud (clay)".

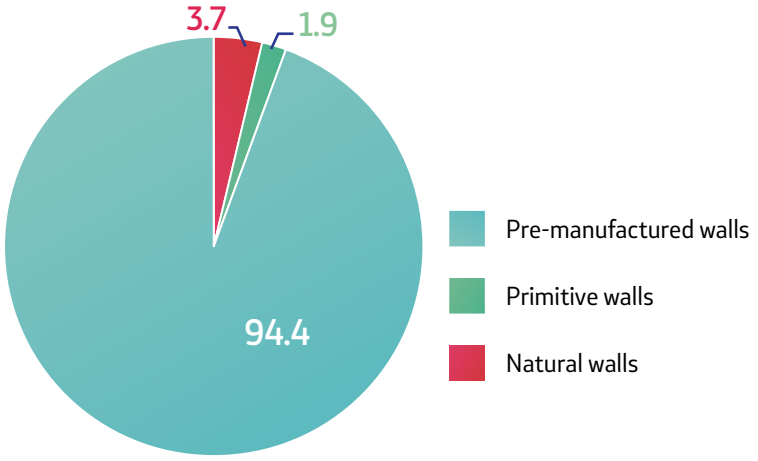


CHART no. 133: Type of external walls in housing units

As regards the **type of roofs**, all respondents (100%) said they live in housing unit with "pre-manufactured roof", most of which (93%) are made of "roofing tiles" and small portion (7%) are made of "asbestos cement".

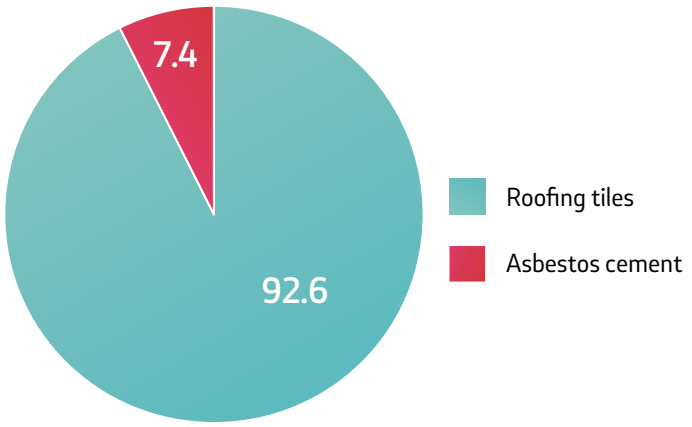


CHART no. 134: Type of roofs in housing units

As regards the type of floors, survey data show that:

→ 96% of housing units have "pre-manufactured floor", of which 78.8% are made of "laminate", 9.6% are "parquet or coated wood", 9.6% are made of "cement" and 1.9% are "carpet floors";

→ 4% of housing units have "natural floors" made of "earth or sand".

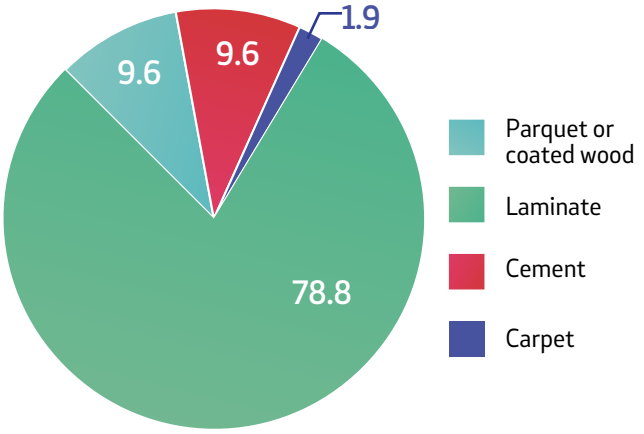


CHART no. 135: Type of floors in housing units

2. HEALTH RISKS CAUSED BY LACK OF BASIC COMMUNAL SERVICES

a) Type of communal services and infrastructure provided in the settlement

Most frequently indicated **communal services and infrastructure** provided in the settlement include: "supply of drinking water - water supply network" (100%), "electricity supply" (94.4%), "waste water discharge - sewage" (65%) and "street lighting" (87%).

Other communal services are represented with insignificant number of responses. More precisely, only 4% of respondents indicated "communal waste collection" in the settlement, while services like "construction and maintenance of traffic signs", "maintenance of public hygiene", "atmospheric water drains", "construction and maintenance of local roads", "maintenance of parks, greeneries and recreational areas", "organization of public transport", and "construction and maintenance of public parking space" **are not provided at all.**

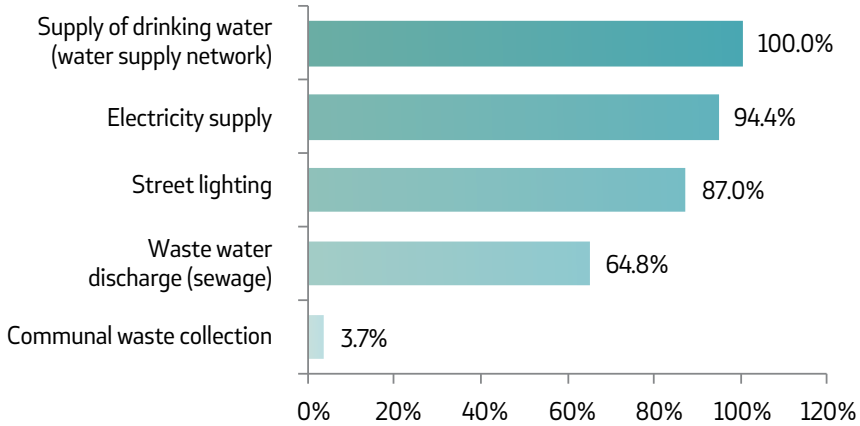


CHART no. 136: Communal services and infrastructure provided in the settlement

Majority of respondents (63%) reported **disposal of solid waste** directly into "garbage containers", 33.3% dispose waste at "illegal dumpsites", while only 3.7% have "household bins that are cleaned by communal hygiene services".

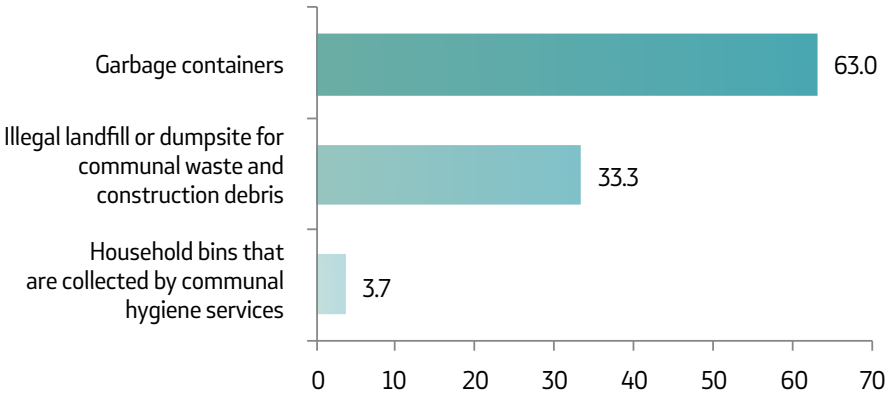


CHART no. 137: Places for disposal of household solid waste

b) Safety of drinking water and sanitary system

All respondents (100%) indicated "water supply network" as **the main source of drinking water in their household**.

98% of households reported "at least one **interruption in water supply**" during the last month and indicated "unavailability of water from the main source" as the reason thereof.

1 respondent (1.9%) did not report such problem.

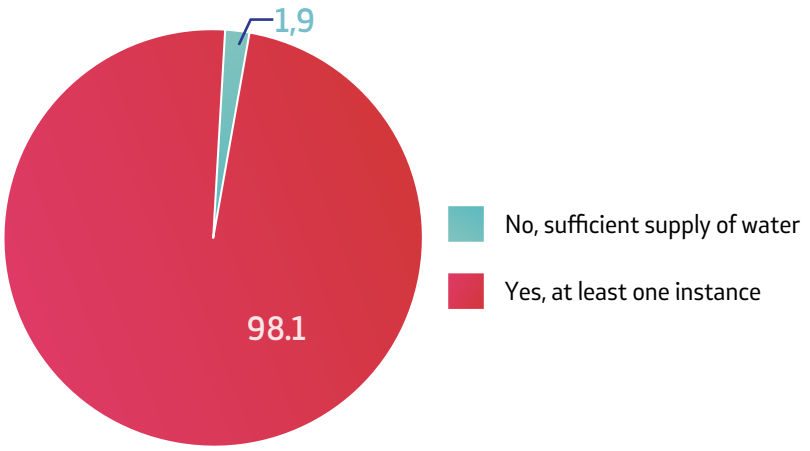


CHART no. 138: Interrupted supply of drinking water in the last month

All respondents (100%) indicated "water supply network" as the **main source of water for cooking and washing hands in their household.**

In 91% of cases, household members use "indoor lavatory" for washing hands, while 9% use "outdoor lavatory - in the yard or land plot".

89% of households use "soap or liquid soap" for washing hands, while 7% of them use "soap and detergent". Two respondents (4%) said that their households "do not have neither soap nor detergent" for washing hands.

As regards the **type of toilets**, survey data show that:

- ➔ 88.9% of housing units have "**flushing toilets**" connected to "sewage pipes";
- ➔ 11.1% of housing units have "**non-flushing toilets**", i.e. "outdoor toilet - covered".

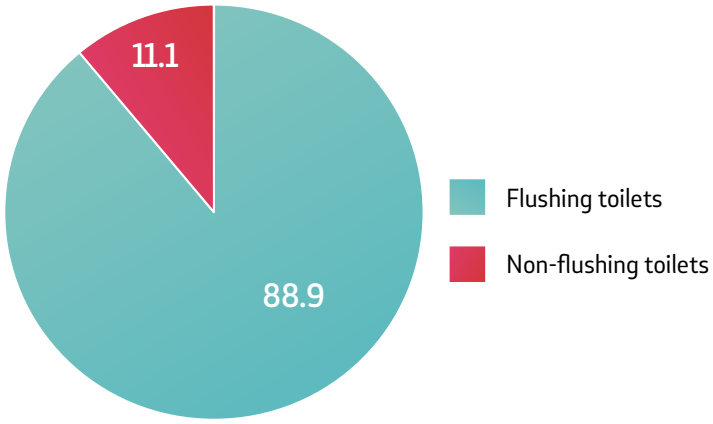


CHART no. 139: Type of toilets in housing units

According to **location of toilets**, 89% of housing units have "indoor toilet", while 9% of housing units have "outdoor toilet - in the yard". 1 respondent (2%) reported that the toilet used by his/her household members is located "elsewhere".

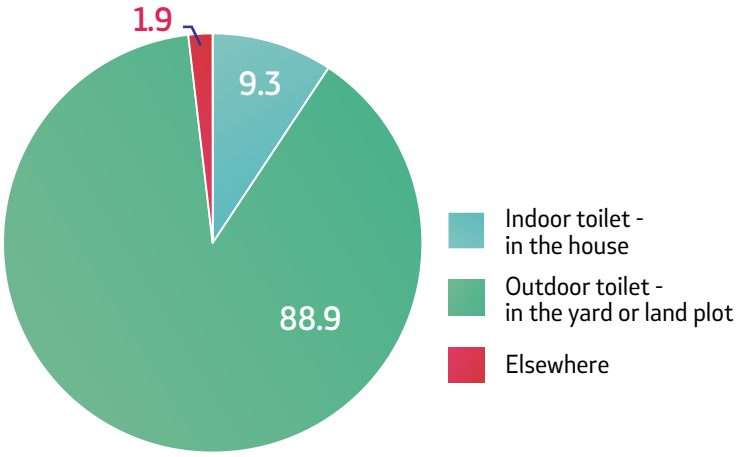


CHART no. 140: Place of toilets in housing units

All households (100%) **"do not share" the toilet** with members of their households.

Among 23 households that use outhouse toilets with **septic tanks**: 6 respondents (11%) reported that the septic tank content "has been cleaned in the last 5 years", 11 respondents (20%) said the content "has been cleaned more than 5 years ago" and 6 respondents (11%) said the septic tank "has not been cleaned at all".

In 15 cases, the content of septic tanks **was last cleaned** "by household members", with 13 households indicating the content was buried "underground" and 2 households indicating "uncovered dam, in the open or into water body".

c) Energy use in households

Among total of **54** households covered by the survey, 98% reported **use of electricity** through "grid connection". Only 1 respondent (2%) said that his/her household does not have electricity.

As regards **cooking devices used by households**, most frequently indicated responses refer to "factory made stove (solid fuel)" (65%), "electric stove" (32%), while 1 household reported "traditional stove (solid fuel)" and 1 respondent indicated "open fireplace".

All 54 respondents reported that their housing units are equipped with chimney.

Most common **type of fuel/energy sources** used for cooking stoves is "wood' (65%), while "electricity" is used by 32% of households. 1 respondent reported use of "wood charcoal", while another respondent "doesn't know" energy source or fuel used by cooking stoves in the household.

Survey data on main energy source in households are in line with these responses, i.e. two-thirds of respondents (65%) reported use of "wood" as main energy source, while 32% indicated "electricity".

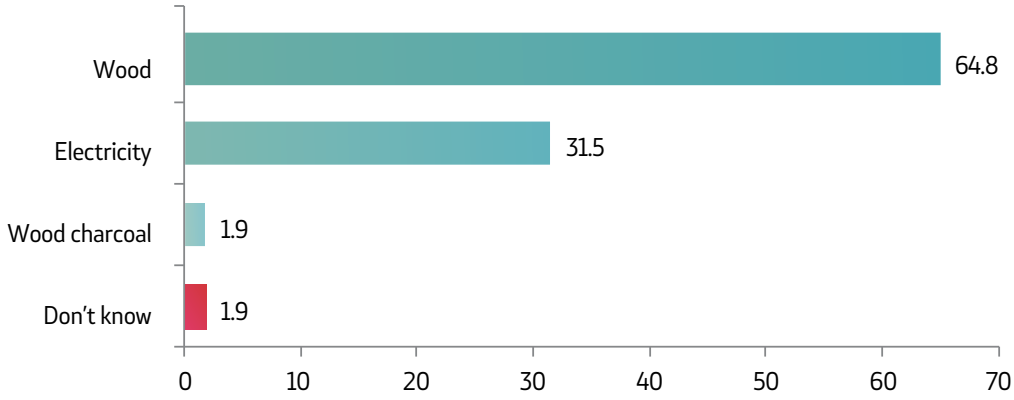


CHART no. 141: Type of fuel or energy source used for cooking stoves

As regards **common place for cooking**, almost all respondents (98%) stated that household members o usually cook "in the main house", of which 17% referred to "separate room for cooking", while 82% indicted "no separate room". 1 respondent said that his/her household does not cook in the main house (2%).

For the purpose of **space heating**, majority of households use "factory-made stove" (87%), while 13% of households have "traditional stove".

All respondents (100%) reported use of "wood" as the **main type of fuel and energy source for space heating**.

Around 87% of households do not have **cooling devices**. Only 1.9% of households have "air-conditioner" and 11% have "fan (floor or ceiling-mounted)".

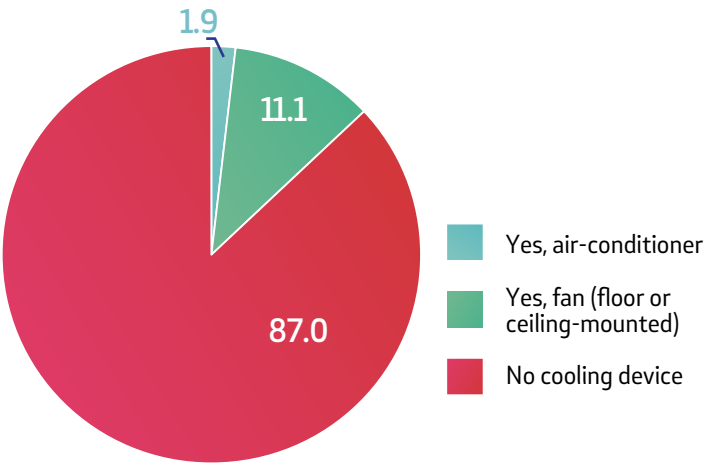


CHART no. 142: Cooling devices used by households

53 from total of 54 respondents (98%) reported use of "electricity" for **night lights.** Only 1 respondent (2%) indicated "other method of lighting".

3. OTHER HEALTH RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

61% of respondents reported "no smoking" **inside the house**. On the other hand, 22% of respondents said that "at least one person smokes inside every day", while 17% said that household members "sometimes" smoke cigarettes inside the house.

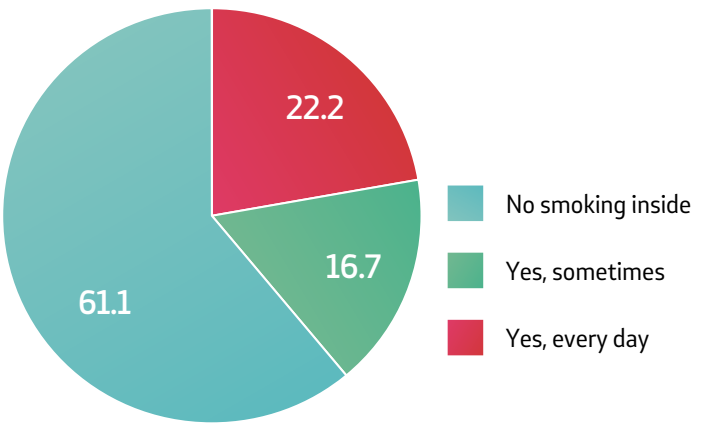


CHART no. 143: Cigarette smoking inside the house by at least one household member

77.8% of respondents indicated “no humidity or visible mildew” on internal walls in their housing unit. “Humidity” on internal walls was reported by one-fifth of households (29.4%), while 1.9% of households indicated “**humidity and visible mildew**” on internal walls.

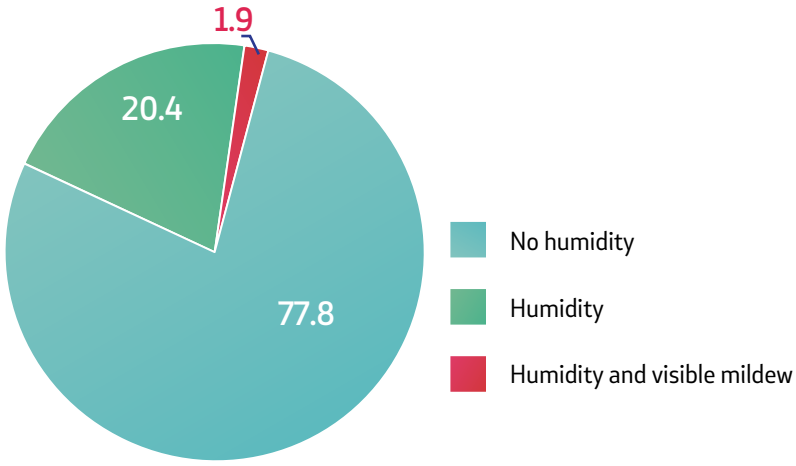


CHART no. 144: Humidity and mildew on internal walls of housing units

As regards **exposure to health risks when performing their job**, only 1 from total of 54 surveyed respondents reported “direct contact with waste waters (sewage)”.

No respondents reported “exposure to smoke” or “direct contact with waste” as part of their job.

Outdoor work due to the nature of their job even on hot summer days when temperatures exceed 37°C was reported by 67% of respondents, of which 22% are “always” and 44% are “sometimes” exposed to high outdoor temperatures.

33% of respondents indicated “no exposure” to high outdoor temperatures when performing their job.

V. CONCLUDING OBSERVATIONS

Resolution of the United Nations General Assembly from 28 July 2022 recognizes the right to safe, clean, healthy and sustainable environment as *universal human right.*

Safe, clean, healthy and sustainable environment is integral to full exercise of the broad scope of human rights, including the right to life, adequate housing, health, clean air, clean water and adequate sanitary conditions, healthy and sustainable food, safe climate and healthy biodiversity and ecosystems.

Clean air (indoor and outdoor), stable climate, adequate water, sanitary conditions and hygiene (WASH), safe handling of chemicals, radiation protection, sound waste management, healthy and safe workplace, cities with health support systems and developed environment, sustainable diets, and preserved biodiversity and ecosystems are of **crucial importance for ensuring good health**.

According to existing constitutional and legal framework in North Macedonia, when planning and implementing their developmental policies, **national and local authorities** *(as holders of public duty)* have positive obligation **to ensure that all citizens** *(as holders of rights)* **enjoy the required quality of environmental conditions in which they are born, grow up, live and age, which ensure their health and wellbeing.**

Environmental risks that affect health and housing conditions account for almost one quarter of the health burden with many *communicable and non-communicable diseases and injuries among the general population in the word,* including ischemic heart disease, stroke, cancer, respiratory infections, diarrhoeal diseases, chronic pulmonary obstruction, road traffic injuries, unintentional poisoning, etc.

WHO Global Strategy on Health, Environment and Climate Change (2020) defines **environmental health risks as** *physical, chemical, biological and work-related factors external to a person, and all related behaviours (especially those related to the environment that can be reasonably modified).*

Exposure to environmental risks at places where daily activities are performed ***(housing and workplace)*** is among main factors considered in respect to their effect on human health and living conditions.

Putting **human health and wellbeing in the centre of spatial and urban planning processes** could stimulate good living standards, build resilient communities, ensure involvement of vulnerable groups and reduce inequality in urban areas.

At the same time this endeavour must **deliver environmental justice**, which means spatial interventions should not and must not **disturb people's rights to safe, clean, healthy and sustainable environment.** This principle of fairness must be implemented by urban planners and decision-makers.

Preventive action by creating healthier environment for healthier population should be an important component of all **policies to achieve more fair and sustainable cities and settlements**. In that regard, policy creators at local level, in cooperation

with health and other institutions at national and regional level, should focus on **preventing environmental risks and addressing their effect** on health through programs, measures and activities that ensure:

→ access to clean drinking water, adequate sanitation, waste collection and management and fight against the present spatial (territorial) segregation as the reason for environmental discrimination in the area of housing and basic services;

→ access to green living areas with recreational value; healthy and safe work environment for those who work under less favourable environmental conditions;

→ study and monitor environmental hygiene and health conditions in terms of: air protection, safety of food and items for general use, drinking water, waste water and solid waste materials, etc. (in close cooperation with relevant regional public health centres).

Roma are among *vulnerable population groups* in North Macedonia facing challenges to adjust to potentially negative environmental consequences from climate change in the country.

Poor and informal Roma settlements are among the most extreme forms of deprivation and exclusion and remain *critical factor for persistent poverty and challenge* in respect to **good health of residents in these settlements.**

Addressing these challenges has been complicated due to **lack of reliable, disaggregated and available data at the level of individual poor and informal Roma settlements** that could help diagnose environmental risks, lack of access to basic services and vulnerability of residential population in these settlements.

The Roma Inclusion Strategy of the Republic of North Macedonia 2022-2030 should include adequate *plans and measure to address environmental risks affecting Roma living in poor, informal settlement,* ***based on data at the level of individual poor and informal settlement***, with potential to change current negative trends in respect to health status and shorter life expectancy of Roma compared to the general population and to contribute to *attainment of national and global goals and targets by 2030:*

→ substantially reduce the number of deaths and illnesses from hazardous chemicals, and air, water and soil pollution and contamination;

→ ensure access for all to adequate, safe and affordable housing and basic services.

World Health Organization (WHO) has established indicative connection among different environmental risk factors and emergence of certain diseases. [59] Guided by the matrix presented in WHO Compendium and based on survey findings, we have identified **key environmental determinant and risks factors that indicatively contribute to occurrence of various chronic and acute diseases among Roma in RNM (Table 2),** which require specific steps to be taken as part of disease control programs:

TYPE OF CHRONIC DISEASE	Indoor pollution caused by use of poor-quality fuel	Exposure to cigarette smoke	Ambiance air pollution	Water, sanitary conditions and hygiene (drinking water, water for sports, toilet and personal hygiene) - WASH	Waste management	Urban planning and infrastructure conditions	Occupational risk
Diabetes	●	●	●				●
Hypertension							
Heart disease	●	●	●			●	●
Post-heart-attack condition	●	●	●				●
Post stroke condition	●	●	●				●
Chronic kidney disease							●
Asthma	●	●	●				●
Chronic pulmonary disease	●	●	●			●	●
Tuberculosis	●	●	●				●
Carcinoma	●	●	●				●
Gastrointestinal diseases (diarrhoea and other)				●	●		●
Acute respiratory diseases	●	●	●			●	

[59] WHO, Compendium of WHO and Other UN Guidance on Health and Environment. 2022 update: p.6.

ENVIRONMENTAL RISKS FACTORS WITH HIGHEST IMPACT ON OCCURRENCE OF CHRONIC DISEASES AMONG ROMA:

AIR POLLUTION

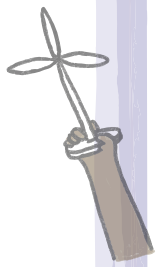
Most important factors for negative health outcomes: ambiance air pollution, use of inadequate and harmful fuel for heating and cooking, indoor smoking.

KEY FINDING: Air in RNM is six times more polluted compared to European countries. Half of Roma suffer from chronic diseases, while survey findings show connection between indoor pollution and prevalence of chronic diseases among Roma.

WATER, SANITARY CONDITIONS AND HYGIENE

Most important factors for negative health outcomes: lack of access to drinking water in households, washing and cooking in substandard conditions due to lack of water in households, inadequate infrastructure and use of toilets.

KEY FINDING: More than half of Roma who share their toilet with other diseases reported gastrointestinal diseases.



WASTE MANAGEMENT

Most important factors for negative health outcomes: creation of illegal landfills and housing in vicinity of such landfills.

KEY FINDING: Almost half of Roma who dispose waste at illegal landfills reported gastrointestinal diseases.

URBAN PLANNING AND INFRASTRUCTURE

Most important factors for negative health outcomes: housing units with walls and roof made of primitive, natural or non-standard materials and presence of mildew and humidity in the homes.

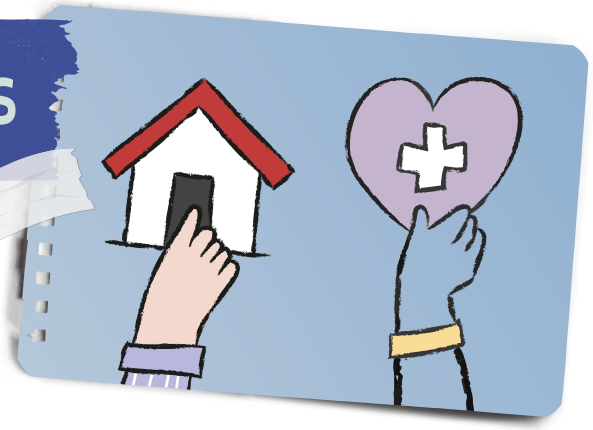
KEY FINDING: More than half of Roma living in housing units made of primitive or natural materials reported acute or chronical diseases, while 40% of those living in housing units with mildew and humidity suffer from asthma.

OCCUPATIONAL RISK

Most important factors for negative health outcomes: Direct contact with waste and waste water and exposure to high outdoor temperatures.

KEY FINDING: Almost half of Roma who have contact with waste or waste water as part of their job reported gastrointestinal diseases.

VI. RECOMMENDATIONS



CAccording to the Constitution, the state is obliged to care for promotion of the population's health. Laws and bylaws anticipate measures and activities for protection of the population's health from negative environmental factors. In particular, one of the main goals defined in the Environment Law concerns protection of human life and health. Law on Health Protection anticipates measures and activities for health protection against gases, noise, ionizing and non-ionizing radiation, pollution of water, land, air and food, and other harmful living and working conditions. This legal provision is further elaborated in the National Annual Public Health Program that includes series of measures and activities for protection against harmful effects related to the environment. Law on Protection from Communicable Diseases also includes provisions on health protection related to provision of safe drinking water, safe discharge of waste water and solid waste.

At the same time, the Ministry of Health has adopted the Action Plan for Prevention of Harmful Effects and Consequences from Cold Weather and Cold Waves on Health of the Population in the Republic of Macedonia, but its last iteration dates from 2012. Moreover, the Ministry of Health has adopted the Action Plan for Prevention of Consequences from Heath Waves on Health of the Population in the Republic of Macedonia, dated back in 2011.

In line with obligations from laws and bylaws, the state should take the following steps:

- Roma National Action Plans need to anticipate activities aimed to reduce effect of environmental risks on health of Roma people;
- The system for climate action planning and implementation should be promoted by strengthening cross-sectoral cooperation in planning and implementing such actions with due consideration of specificities of and risks faced by vulnerable population groups;
- The public health sector should take into consideration all climate change risks that result in poor health outcomes, and should prepare and implement actions aimed to promote health of citizens, with focus on vulnerable population groups;
- All recommendations and guidelines from WHO Compendium on Health and Environment should be implemented (Compendium of WHO and Other UN Guidance on Health and Environment).
- Roma households need to be supported to practice efficient and safe methods of cooking, lighting and space heating through combination of fuels and technologies that are safe, including introduction of restrictive measures and continuous controls to identify and prevent use of poor-quality fuels for cooking, lighting and heating;

• Roma households need to be supported to introduce systems for safe waste water discharge, i.e. efforts are needed to ensure that all Roma households are connected to the sewage system.

• Support and stimulation is needed for energy efficient housing, including construction, lighting, cooling and heating;

• Efforts are needed to identify households that use drinking water from springs, including regular mandatory control in terms of safety of drinking water;

• Adequate working conditions should be secured for Roma through institutionalization of informal work with special risk (waste collectors and similar activities);

• Educational and promotional campaigns should be organized to raise awareness among Roma about health risks caused by indoor pollution in households;

• Educational and promotional campaigns should be organized to raise awareness among Roma about risks of cigarette smoking, especially secondary exposure to cigarette smoke that affects vulnerable groups of citizens.

ANNEX 1:

LIST OF HEALTH RISKS CAUSED BY HOUSING AND WORKING CONDITIONS

RISK FACTORS
HOUSING UNITS
Walls are made of natural or primitive materials or no walls
Floor is made of natural or primitive materials
Roof is made of natural or primitive materials
WATER SUPPLY AND WASTE WATER DISCHARGE
Water from dug wells and springs is used as drinking water
Water from dug wells and springs is used for washing hands
Portable lavatory (bucket and pitcher) or no lavatory in household/ yard land plot
No products for washing hands (soap, detergent, disinfectant, etc.)
Non-flushing (outhouse) toilets
Households share the toilet with members of other households
Waste water is discharged into septic tank
Septic tank was last cleaned more than 5 years ago
Septic tank is cleaned by household members and not provider of such services
INDOOR POLLUTION
Household uses traditional furnace, factory-made furnace (solid fuel), traditional furnace (solid fuel) and open fireplace for cooking
Main energy source for cooking is: petrol/diesel, kerosine/paraffin, coal/lignite, wood charcoal, wood, agriculture waste/grass/straw/branches, animal manure, processed biomass (pellets) or wood shavings, waste/plastic/tiers, etc.
Household uses traditional stove, factory-made stove (solid fuel), traditional stove (solid fuel) and open fireplace for cooking.
Main energy source for cooking is: petrol/diesel, kerosine/paraffin, coal/lignite, wood charcoal, wood, agriculture waste/grass/straw/branches, animal manure, processed biomass (pellets) or wood shavings, waste/plastic/tiers, etc.
At least one person smokes cigarettes inside the house every day or sometimes.
Household has chimney that is not in use.

SOLID WASTE DISPOSAL FROM HOUSEHOLDS
Household disposes solid waste at illegal landfill or dumpsite for communal waste and construction debris and other places not intended for waste disposal.

WORKING CONDITIONS
Jobs that include direct contact with waste, exposure to smoke and direct contact with waste water (sewage).
Jobs that include direct contact with waste, exposure to smoke and direct contact with waste water combined with no or occasional use of personal protection equipment.
Jobs that include exposure to high outdoor temperature (exceeding 37°C)

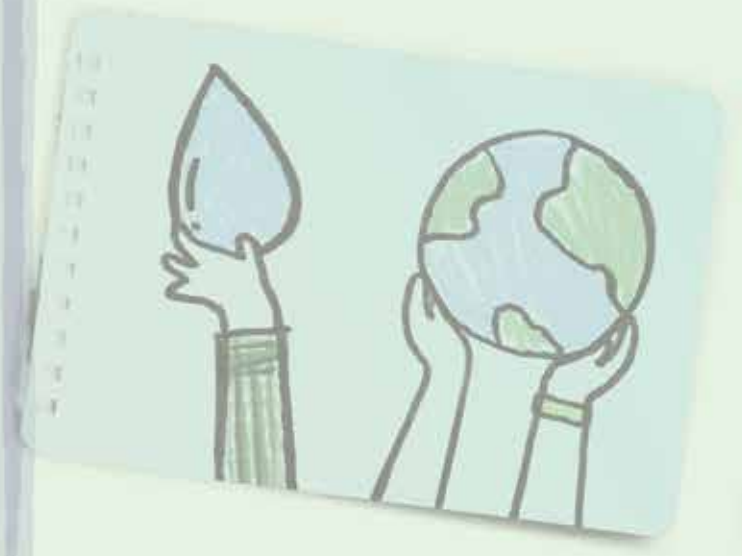
ANNEX 2:

LIST OF CHRONIC DISEASES [60] IDENTIFIED AMONG RESPONDENTS [61] AND OTHER HOUSEHOLD MEMBERS

CHRONIC DISEASES
Diabetes
Hypertension
Heart disease
Post heart-attack condition
Post-stroke condition
Chronic kidney disease
Asthma
Chronic pulmonary disease
Tuberculosis
Carcinoma
Chronic liver disease

[60] Chronic disease is defined as illness or health conditions that last for more than 6 months.

[61] Note: chronic diseases are identified on the basis of responses from surveyed respondents.



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