Context

This fact sheet series documents the magnitude of environmental health inequalities within countries in the WHO European Region.

Environmental health inequalities relate to socioeconomic, sociodemographic or spatial differences in exposure to environmental health risk factors and to differences in health status caused by environmental conditions.

The access to at least basic sanitation services fact sheet provides available data on the unequal distribution of access to safe and clean sanitation services within the countries in the Region, updating earlier assessments.

An overview of environmental health inequalities covered by the fact sheets and earlier assessments is available at: www.euro.who.int/en/EHinequalities

Inequalities in access to at least basic sanitation services

Key messages

1. Access to less than basic – and therefore unsafe – sanitation services is mostly a challenge in central and eastern European, Caucasian and central Asian countries, but affects few western and south-eastern European countries.

2. In most countries, rural populations exhibit a higher prevalence of relying on less than basic sanitation services.

3. Socioeconomic inequalities in access to less than basic sanitation services exist in most countries; they tend to be stronger in rural than in urban areas.

4. In most countries, the poorest people living in rural areas are the most disadvantaged population group, with the highest level of less than basic sanitation services.

Access to at least basic sanitation services is linked to Sustainable Development Goals 3, 6, 10 and 11, and supports the identification of national challenges to “leave no one behind”.

February 2022
Methodological notes

Defining inequalities

Environmental health inequalities are the differences in environmental health conditions between population groups. They can be quantified as absolute and relative inequalities.

Absolute inequalities are quantified by differences in the prevalence of a risk factor or disease between population groups (e.g. between poor and rich households). Relative inequalities, in contrast, are quantified as ratios between population groups.

To provide an accurate assessment, absolute and relative inequalities are equally important. The data in this fact sheet thus aim (when possible) to provide information on both measures.

Further information on defining and assessing environmental health inequalities is available from WHO’s Environmental health inequalities resource package [1].

Indicator data

The data source for this fact sheet is the WHO/United Nations Children’s Fund (UNICEF) Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) global database (2020 data) (2). This differentiates between five service levels, ranging from reliance on open defecation to safely managed sanitation (3).

This fact sheet differentiates between “at least basic services” (meeting the criteria of safely managed and basic services) versus “less than basic services” (limited, unimproved or open defecation).

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of access to at least basic</td>
<td>Population not served by safely managed or basic sanitation services</td>
<td>WHO/UNICEF JMP</td>
</tr>
<tr>
<td>sanitation services</td>
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Inequalities in access to at least basic sanitation services

To show inequalities within countries, prevalence data can be compared between national population subgroups, stratified by:

- socioeconomic determinants (e.g. income, poverty, education or employment);
- sociodemographic determinants (e.g. age, gender, ethnicity or household type); or
- spatial determinants (e.g. place of residence).

Most data in this fact sheet rely on a comparison of prevalence of access to at least basic sanitation services, which describes the proportion of people or households in a population that has access to at least basic – versus less than basic – sanitation services at a given time.

Box 1 shows the inequality stratifications used in this fact sheet.

Table 1. European subregions used for the assessment

<table>
<thead>
<tr>
<th>Subregion</th>
<th>Coverage</th>
<th>Countries included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euro 1 (21 countries)</td>
<td>All countries belonging to the European Union (EU) before May 2004 and western European countries at comparable developmental level</td>
<td>EU countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden Non-EU countries: Andorra, Iceland, Monaco, Norway, San Marino, Switzerland, United Kingdom</td>
</tr>
<tr>
<td>Euro 2 (13 countries)</td>
<td>All countries joining the EU after May 2004</td>
<td>Bulgaria, Croatia, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia</td>
</tr>
<tr>
<td>Euro 3 (12 countries)</td>
<td>All countries belonging to the Commonwealth of Independent States, and Georgia and Ukraine</td>
<td>Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan</td>
</tr>
<tr>
<td>Euro 4 (7 countries)</td>
<td>All countries that are part of the South-eastern Europe Health Network, and Turkey</td>
<td>Albania, Bosnia and Herzegovina, Israel, Montenegro, Serbia, North Macedonia, Turkey</td>
</tr>
</tbody>
</table>

1 Criteria of safely managed sanitation services include the requirements for basic sanitation services; these two service levels can therefore be grouped together as “at least basic services”.

Box 1. Inequality stratifications

Place of residence

The population is divided into urban and rural populations.

Wealth

The population is divided into wealth quintiles, each covering a fifth of the total population.
The United Nations explicitly recognizes the human rights to water and sanitation, which should be equitably provided to everyone (4). Sustainable Development Goal 6 focuses on ensuring universal and equitable access to adequate and safe drinking-water, sanitation and hygiene services for all.

Exposure to pathogenic micro-organisms through inadequate drinking-water and sanitation can cause adverse health effects. Around 18% of reported infectious disease outbreaks in the WHO European Region are associated with the water and sanitation exposure pathway: viral gastroenteritis, hepatitis A, Escherichia coli diarrhea and legionellosis are the most common disease outcomes (5). Some 819 disability-adjusted life-years in adults and 671 in children under five (a particularly vulnerable group) can be attributed to inadequate water, sanitation and hygiene in the Region (6). Interventions to improve access to sanitation services and promote hygiene practices are effective in reducing the health burden of water-related disease.

Average levels of safely managed sanitation service coverage varied across the WHO European Region in 2020, ranging from 92.7% in the Euro 1 to 48.0% in the Euro 3 subregion (Fig. 1). Low sanitation service levels – categorized here as "less than basic" (including limited and unimproved services or open defecation; Table 2) – are problematic from a health perspective. Comparatively high proportions of populations relying on access to less than basic sanitation services were found for individual countries in the Euro 3 and Euro 4 subregions. The highest prevalence was reported by the Republic of Moldova, at 21.3%.

**Fig 1. Prevalence of sanitation service levels by country (2020)**

<table>
<thead>
<tr>
<th>SERVICE LEVEL</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFELY MANAGED</td>
<td>Use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or removed and treated offsite</td>
</tr>
<tr>
<td>BASIC</td>
<td>Use of improved facilities that are not shared with other households</td>
</tr>
<tr>
<td>LIMITED</td>
<td>Use of improved facilities that are shared with other households</td>
</tr>
<tr>
<td>UNIMPROVED</td>
<td>Use of pit latrines without a slab or platform, hanging latrines or bucket latrines</td>
</tr>
<tr>
<td>OPEN DEFECATION</td>
<td>Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches or other open places, or with solid waste</td>
</tr>
</tbody>
</table>

**Table 2. Sanitation service levels**

Inequalities by place of residence

Relying on less than basic sanitation services (such as sharing latrines among households, using unimproved toilets or even practising open defecation) was a major issue for many countries in the Euro 2 and Euro 3 subregions, but less of a problem for countries in the Euro 1 and Euro 4 subregions in 2020 (Fig. 2).

Prevalence of relying on less than basic sanitation services in urban populations ranged from 0% in some countries to over 13% in Bulgaria and the Republic of Moldova. This gap was much wider in rural areas, ranging from 0% to over 27% in the Russian Federation, Georgia and the Republic of Moldova.

In the Euro 2, Euro 3 and Euro 4 subregions, prevalence of relying on access to less than basic sanitation services was higher, on average, in rural than in urban populations, while this situation was reversed for the Euro 1 subregion.

The highest absolute differences between rural and urban areas were found in the Russian Federation and Ireland. In the Russian Federation, prevalence was 22.9 percentage points higher in rural than in urban areas, while in Ireland, the urban population was disadvantaged: prevalence of less than basic sanitation was 4.9 percentage points higher in urban than in rural areas.

The highest inequality ratio between urban and rural areas was found in the Euro 4 subregion, where prevalence of less than basic sanitation services was 14 times higher in rural than in urban areas.

Fig 2. Prevalence of relying on less than basic sanitation services in urban and rural populations (2020)

Note: countries reporting full coverage with at least basic sanitation services were excluded from the chart, as was Monaco, which reported zero urban population using such services and no data for rural populations; no data available for San Marino and Slovenia; [a] countries reporting full coverage with at least basic sanitation services in rural areas; [b] values for all subregions based on data from all countries in the respective subregion, including those with full coverage that are not displayed; [c] no data available for rural areas; [d] countries reporting full coverage with at least basic sanitation services in urban areas.

In urban areas, prevalence of less than basic sanitation services decreased from 3.1% to 1.7% between 2000 and 2020 across all countries (Fig. 3; note the different y-axis scales).

Prevalence decreased between 2000 and 2020 in all subregions except Euro 1, which remained stable. The biggest improvement was seen in the Euro 4 subregion, where the 2020 prevalence of less than basic sanitation services was very low (0.2%).

In rural areas, reliance on less than basic sanitation services was halved from 13.7% in 2000 to 6.5% in 2020, indicating a significant improvement of rural sanitation services across all countries (though prevalence remained much higher than in urban areas).

Significant prevalence reductions between 2000 and 2020 are observed for rural areas in the Euro 3 and Euro 4 subregions (from 24.5% to 12.2% in Euro 3 and from 24.0% to 2.7% in Euro 4). The Euro 2 subregion showed a strong increase in prevalence of rural access to less than basic sanitation services between 2000 and 2005, before a steady decrease until 2020 (from 19.2% to 7.5%).

In relative terms, the inequality ratio for access to less than basic sanitation services between rural and urban areas fell from 4.01 in 2000 to 3.31 in 2020 in the Euro 3 subregion, but it increased from 6.71 to 14.31 in the Euro 4 and from 2.91 to 3.41 in the Euro 2 subregion. This indicates that the relative inequality between rural and urban populations increased in the Euro 4 and Euro 2 subregions, although absolute prevalence of less than basic sanitation services fell in urban and rural areas in both subregions.

**Fig. 3. Trend of prevalence of relying on less than basic sanitation services in urban and rural populations (2000–2020)**
Inequalities by wealth

Wealth quintile data are available for only 16 countries in the WHO European Region. In five of these, prevalence of less than basic services was below 5% in all wealth quintiles in the last year of reporting. This indicates a low level of inequalities, as at least 95% of the population in each quintile benefit from at least basic sanitation services. In six countries, prevalence was over 15% in at least one quintile, leading to stronger inequalities (Fig. 4).

In most countries (except Kyrgyzstan, Tajikistan and Turkmenistan), a social gradient was observed: the proportion of population relying on less than basic sanitation services was greatest in the lowest wealth quintile and smallest in the highest quintile.

The magnitude of absolute inequalities between the wealth quintiles varied immensely between countries. Absolute inequalities between the lowest and the highest reliance on less than basic sanitation services ranged from 2 percent points in Kazakhstan (0.9% to 3.0%) to 36 percent points in the Republic of Moldova (5.3% to 41.9%).

Georgia and North Macedonia reported the strongest relative inequalities, with the lowest wealth quintile 76.6 and 65.3 times more likely to depend on less than basic sanitation services.

Fig 4. Proportion of the population using less than basic sanitation services by wealth quintile (last year of reporting)

Note: last year of reporting ranges from 2018 to 2020, except Azerbaijan (2010).
Interaction between socioeconomic and spatial inequalities

In 10 countries the poorest quintile in rural areas was identified as the most disadvantaged subgroup in the last year of reporting, with the highest prevalence of access to less than basic sanitation services. In six countries, the poorest urban quintile was the most disadvantaged (Fig. 5).

In most countries, the richest urban quintile had the lowest prevalence of access to less than basic sanitation services, ranging from 0.1% in North Macedonia and Turkey and 0.2% in Serbia to 5.6% in Azerbaijan. In six countries, the poorest urban quintile had the highest prevalence, ranging from 4.5% in Ukraine to 36.9% in Azerbaijan.

In 10 countries the richest quintile in rural areas had a lower prevalence of less than basic sanitation services than the poorest quintile in urban areas. This shows that economic resources can be more relevant than residential location to ensure access to adequate sanitation.

The Republic of Moldova reported the highest absolute inequality: prevalence of access to less than basic sanitation services was 40 percentage points higher in the poorest rural quintile than in the richest urban quintile.

The highest relative inequality was observed in North Macedonia and Turkey, where prevalence of less than basic sanitation services was 287 and 277 times higher for the rural poor than for the urban rich.

Fig 5. Proportion of urban and rural population using less than basic sanitation services by wealth quintile (last year of reporting)

Note: last year of reporting ranges from 2018 to 2020, except Azerbaijan (2010).
Conclusions and suggested mitigation actions

The inequality gap between rural and urban populations relying on less than basic – and therefore unsafe – sanitation services varies widely. Some countries show only marginal differences, while others show strong rural/urban inequalities, up to an absolute prevalence difference of 22 percentage points and an equity ratio of 17:1.

Improvements in access to at least basic sanitation services can be observed since 2000 in the Euro 3 and Euro 4 subregions, and since 2005 in the Euro 2 subregion. However, relative inequalities have increased slightly in the Euro 2 and significantly in the Euro 4 subregion.

Analysis of wealth inequalities reveals significant gaps between wealthier and poorer population groups. Across 12 of 16 countries with available data, reliance on less than basic sanitation services is highest in the poorest wealth quintiles and shows a clear social gradient.

The integrated analysis of socioeconomic and spatial inequalities suggests that poverty is the most important determinant of reliance on less than basic sanitation services. In 10 countries, the most disadvantaged group is the rural poor and in six countries the urban poor. Interventions to close persisting inequality gaps in access to at least basic sanitation should therefore prioritize those disadvantaged groups.

Suggested mitigation actions are:

- systematically identifying inequality gaps and their potential causes at national and local levels;
- undertaking targeted assessments of inequalities related to drinking-water service provision and establishing and supporting equitable access action plans (8, 9);
- improving monitoring systems and data availability, particularly for socioeconomic and sociodemographic inequalities, to improve the evidence base and to target interventions effectively;
- setting and enforcing specific equitable access targets and implementation plans under the Protocol on Water and Health (4);
- improving the capacity of water operators to embrace and consider equity considerations in planning, management and operation of services;
- establishing procedures and capacities in rural communities to provide safely managed drinking-water services; and
- including equity considerations as a prerequisite in the formulation of new programmes and projects on drinking-water infrastructure and management.

References


Further reading on the subject is available at: https://www.uni-bremen.de/en/who-collaborating-centre-for-environmental-health-inequalities
The WHO Regional Office for Europe
The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

Member States

Albania                 Greece                 Portugal
Andorra               Hungary                Republic of Moldova
Armenia                Iceland              Romania
Austria                Ireland                Russian Federation
Azerbaijan              Israel                San Marino
Belarus                   Italy                Serbia
Belgium               Kazakhstan                Slovakia
Bosnia and Herzegovina Kyrgyzstan              Slovenia
Bulgaria               Latvia                Spain
Croatia                Lithuania            Sweden
Cyprus                 Luxembourg          Switzerland
Czechia               Malta                Tajikistan
Denmark               Monaco               Turkey
Estonia               Montenegro           Turkmenistan
Finland               Netherlands          Ukraine
France                North Macedonia          United Kingdom
Georgia               Norway               Uzbekistan
Germany