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 drinking-water services fact sheet provides available data on the unequal distribution of access to safe and clean drinking-water within 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 drinking-water services

Key messages

1. Relying on less than basic – and therefore unsafe – drinking-water services is a major challenge for many countries in eastern Europe, the Caucasus and central Asia, and in south-eastern Europe.

2. Rural/urban differences are largest in eastern European, Caucasian and central Asian countries, but such spatial inequalities have fallen steadily since 2000.

3. Few countries reported data on wealth-related inequalities; among these, the largest inequalities were observed in Azerbaijan, Georgia, Kyrgyzstan, the Republic of Moldova and Tajikistan.

4. The poorest people living in rural areas are the most disadvantaged population group, with the lowest level of access to at least basic drinking-water services.

Access to at least basic drinking-water 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 surface water sources to safely managed drinking-water (3).

This fact sheet distinguishes between “at least basic services” (meeting the criteria of safely managed or basic service levels) versus “less than basic services” (limited and unimproved services or surface water).

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

Inequality stratifications

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 drinking-water services, which describes the proportion of people or households in a population that have access to at least basic – versus less than basic – drinking-water 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 drinking-water services include the requirements for basic drinking-water 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.
Introduction and health relevance

Access to safe and clean drinking-water and sanitation are basic human rights and should be equitably provided for everyone (4). In the WHO European Region, waterborne diseases constitute a significant health burden, although the true extent is unknown. Around 18% of reported infectious disease outbreaks are associated with the water exposure pathway (5). In low and middle-income countries in the Region, an estimated 959 people died in 2016 from diarrhoeal disease associated with inadequate water supply (6).

Lower drinking-water service levels – categorized here as “less than basic” (including limited or unimproved service levels or use of surface water; Table 2) – may be problematic from a health perspective. Comparatively high proportions of populations relying on less than basic drinking-water services were found in countries of the Euro 3 subregion. The highest prevalence was reported by Tajikistan, where 18.1% of the population depended on these sources.

![Fig. 1. Prevalence of drinking-water service levels by country (2020)](image)

Table 2. Drinking-water service levels

<table>
<thead>
<tr>
<th>SERVICE LEVEL</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFELY MANAGED</td>
<td>Drinking-water from an improved water source that is located on premises, available when needed and free from faecal and priority chemical contamination</td>
</tr>
<tr>
<td>BASIC</td>
<td>Drinking-water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing</td>
</tr>
<tr>
<td>LIMITED</td>
<td>Drinking-water from an improved source for which collection time exceeds 30 minutes for a round trip, including queuing</td>
</tr>
<tr>
<td>UNIMPROVED</td>
<td>Drinking-water from an unprotected dug well or unprotected spring</td>
</tr>
<tr>
<td>SURFACE WATER</td>
<td>Drinking-water directly from a river, dam, lake, pond, stream, canal or irrigation canal</td>
</tr>
</tbody>
</table>

Note: no data available for Croatia.
Relying on less than basic drinking-water services (such as using unprotected sources or untreated surface water) is a major issue for many countries in the Euro 3 and Euro 4 subregions, but less of a problem for those in the Euro 1 and Euro 2 subregions in 2020 (Fig. 2).

The proportion of the urban population relying on less than basic services was highest in Ukraine (8.7%), whereas for the rural population the proportion was highest in Tajikistan (23.4%).

In most countries, rural dwellers had higher proportions of use of less than basic services, although in several countries (including Belarus, Bosnia and Herzegovina, Ireland and Ukraine), dependence on less than basic water was mostly an urban challenge.

With ratios of prevalence between rural and urban populations of 2.6:1 and 3.1:1, the Euro 2 and Euro 3 subregions had higher relative rural/urban inequalities than the Euro 1 (1.3:1) and Euro 4 (1.5:1) subregions. Kyrgyzstan had the highest relative inequalities within a country, with a ratio of 18.4:1, indicating that rural residents were 18.4 times more likely to have less than basic service levels than urban residents. Absolute inequalities were highest in the Euro 3 subregion, with the highest difference in prevalence between rural and urban populations 18.9 percentage points in Tajikistan.

Fig. 2. Prevalence of relying on less than basic water sources for drinking-water in urban and rural populations (2020)

Notes: countries reporting full coverage with at least basic drinking-water sources were excluded from the chart, as were Monaco and Croatia (which reported zero urban population using such services and no data for rural populations) and Italy, San Marino and Slovenia due to a lack of data; [a] countries reporting full coverage with at least basic drinking-water sources in rural areas; [b] countries reporting full coverage with at least basic drinking-water sources in urban areas; [c] values for all subregions based on data from all countries in the respective subregion, including those with full coverage that are not displayed; [d] no data available for rural areas.

In urban areas, on average across all countries, the proportion of the population relying on less than basic drinking-water services in 2020 was around 1.0%. Owing to differences within subregions, however, no overall improvement has been seen in the last 20 years (Fig. 3; note the different y-axis scales).

Urban prevalence rates of access to less than basic drinking-water services have decreased consistently since 2000 in the Euro 4 subregion, whereas the Euro 3 subregion reported a slight increase in the same period. In the Euro 1 and 2 subregions, prevalence of less than basic drinking-water services did not change between 2000 and 2020, and it affects only a very marginal part of the population.

In rural areas, average reliance on less than basic drinking-water services across all countries stood at 3.4% in 2020 – three times higher than in urban areas. However, the data show that significant progress was made in all subregions over the last 15–20 years.

Access rates to less than basic drinking-water services in rural areas have fallen strongly since 2000 in both Euro 3 and Euro 4 subregions, and have also decreased in Euro 2 countries.

Absolute inequalities between rural and urban populations decreased from 16.1 to 5.0 percentage points in the Euro 3 and from 5.7 to 1.2 percentage points in the Euro 4 subregion in 2000–2020. In relative terms, this means that the inequality ratio between rural and urban drinking-water supply fell from 10.0:1 in 2000 to 3.1:1 in 2020 in the Euro 3 and from 2.3:1 to 1.5:1 in the Euro 4 subregion.

**Fig. 3. Trend of prevalence of relying on less than basic drinking-water services in urban and rural populations (2000–2020)**

Notes: different y-axis scales are used for urban and rural trends; owing to the updated JMP service levels and the ongoing annual recalculation of service use, the values depicted in these charts cannot be compared directly to the trend figures in WHO’s 2019 report on environmental health inequalities in Europe (7). Source: WHO/UNICEF JMP global database (2), accessed 1 July 2021.
Inequalities by wealth

Wealth quintile data are available for only 16 countries in the WHO European Region. In 10 of these, water supply differences by wealth were small in the last year of reporting, as prevalence of less than basic services was below 5% for all quintiles.

Population groups in the lowest wealth quintile had the highest prevalence of access to less than basic drinking-water (except in Montenegro and Ukraine).

In Azerbaijan and the Republic of Moldova, this affected more than a quarter of the least wealthy population (Fig. 4).

Relative wealth inequalities were largest in Georgia, with an inequality ratio of 21.5:1. Absolute inequalities in prevalence were greatest in Azerbaijan, where the difference between the lowest and highest wealth quintiles was 28.6 percentage points.

In Tajikistan, there was a marked distinction between the two highest wealth quintiles and the others, indicating that even the middle wealth quintile had high dependence on less than basic service levels. The prevalence of over 21% was not only the highest value for the middle quintile across all countries but also higher than the prevalence for the second lowest wealth quintile in all other countries.

Fig. 4. Proportion of the population using less than basic drinking-water 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 nine countries, reliance on less than basic drinking-water services was below 4% for both the lowest and highest wealth quintiles in urban and rural areas in the last year of reporting (Fig. 5).

Inequalities were more apparent in Albania, Azerbaijan, Georgia, Kyrgyzstan, the Republic of Moldova, Tajikistan and Turkey, where prevalence of less than basic drinking-water services was close to or over 10% for the poorest population in rural areas: the most disadvantaged subgroup.

In these countries (except the Republic of Moldova), the richest quintiles in rural areas had the second highest rates of less than basic services, highlighting the relevance of rural disadvantage even for more affluent households.

Significant inequalities by wealth quintile also existed in urban settings, showing the challenge of urban poverty (as in Azerbaijan and Kyrgyzstan). In Albania and the Republic of Moldova, the poorest urban population groups had similar or less access to at least basic services than the richest populations in rural settings.

Fig. 5. Proportion of urban and rural populations using less than basic drinking-water services by wealth quintile (last year of reporting)
Conclusions and suggested mitigation actions

The inequality gap between rural and urban populations relying on less than basic – and therefore unsafe – drinking-water services varies widely. Some countries show no or just marginal differences, while others show strong rural/urban inequalities, up to an absolute prevalence difference of 18.9 percentage points and an equity ratio of 18.4:1.

With a few exceptions, rural dwellers are the most disadvantaged; however, improvements in access to adequate drinking-water services have occurred since 2000, and both absolute and relative rural/urban inequalities have decreased.

Significant gaps can be seen between wealthier and poorer population groups. Across 14 of 16 countries with available data, use of less than basic drinking-water services follows a wealth gradient, with the poorest quintiles being most disadvantaged.

The integrated analysis of socioeconomic and spatial inequalities reveals that the poorest people living in rural areas are those most disadvantaged. Interventions to close persisting inequality gaps in drinking-water access should therefore prioritize these disadvantaged groups and areas.

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
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The full overview of environmental health inequalities covered by the fact sheets can be viewed at: www.euro.who.int/en/EHinequalities