

Small-scale water supply and sanitation systems: Country activities towards achieving safe services

Acknowledgements

Bettina Rickert, Verena Zügner, Laura Huber, Isabelle Schmidt

Inhalt

- 1 Introduction..... 2
- 2 Small-scale systems as a priority under the Protocol..... 4
- 3 Methodology and data reviewed 7
- 4 Results 8
 - 4.1 Access to and quality of drinking-water and sanitation services in rural areas..... 8
 - 4.1.1 Access to drinking-water and sanitation services 8
 - 4.1.2 Drinking-water quality..... 12
 - 4.1.3 Data summary 14
 - 4.2 Targets set and other activities under the Protocol to improve small systems..... 15
 - 4.2.1 Focus of targets and other activities 15
 - 4.2.2 Challenges and success factors 16
 - 4.2.3. Country good practice examples..... 17
- 5 Discussion and conclusions 35
- 6 Literature..... 36
- Annex 1 – Questionnaires of the online survey 38

1 Introduction

Small-scale drinking-water supply and sanitation systems form an essential part of the provision of services in the pan-European region, particularly in rural areas. Approximately 207 million people (23% of the region's population) receive water from drinking-water supplies serving fewer than 5,000 people (Rickert et.al. 2016).

Small-scale systems face a number of challenges, including technical challenges, a lack of awareness and attention by policy-makers, regulations insufficiently addressing small-scale systems, limited interinstitutional collaboration at different levels and networking, inadequate independent oversight and surveillance schemes, limited training and capacity of operators, and financial challenges including higher per unit-costs (WHO Regional Office for Europe (2011)).

In order to improve the data base on small-scale systems in the pan-European region, for a better understanding of their situation, and to increase action for their improvement as well as policy attention, these systems have been continuously addressed under the programmes of work of the Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (*the Protocol*) (Box 1).

Box 1: The Protocol on Water and Health

The Protocol is a legally-binding instrument on drinking-water, sanitation and health in the pan-European region.

Its main aim is to protect public health from water-related diseases in the region, and to help governments to improve water, sanitation, hygiene and health conditions across their countries, and to sustain their improved status in the long term.

Parties to the Protocol are required to establish national targets to achieve or maintain a high level of protection from water-related diseases. Thematic areas in which targets can be set include for example improving drinking-water supply and sanitation, water resources management, water quality, as well as bathing water quality. They also need to report to the Meeting of the Parties of the Protocol every 3 years, including on status of target achievement and on common indicators on water and health.

The Meeting of the Parties decides every 3 years on a Programme of Work, prioritising the activities, for example on small systems, for the coming years.

This publication aims to support countries in setting targets and developing and implementing national policies and strategies to improve small-scale water supply and sanitation, and to identify data gaps, challenges and needs regarding rural systems. The concept of equitable access to drinking-water and sanitation considers the three key dimensions of geographical differences, access by vulnerable and marginalized groups, and financial affordability of services. The aspect of geographical differences in equitable access are explored in this publication by comparing data from urban to rural areas where small-scale systems typically prevail, and special attention is given to sanitation in this study.

The publication provides information on access to drinking-water and sanitation services from the WHO/UNICEF Joint Monitoring Programme on Drinking Water, Sanitation and Hygiene (JMP) and on drinking-water quality from the 2019 national summary reports in accordance with article 7 of the Protocol to provide insights into the status quo and possible areas for improvement. It furthermore provides examples of activities and good practices from individual countries within the pan-European region regarding small-scale systems, as communicated in the national summary reports under the Protocol, during an online survey, as well as in-depth interviews.

The study particularly aims to highlight the Protocol's role as a framework to address priority issues, such as the safe management of and policy attention to small-scale water supply and sanitation systems. It especially aims to inspire target setting on small systems by providing examples and good practices from countries within the pan-European region, which may inspire policy-makers for future action. The publication identifies areas where further action and improvements are needed, including in the enabling environment that supports long-term and sustained progress.

DRAFT

2 Small-scale systems as a priority under the Protocol

How it all began...

Small-scale water supply and sanitation systems have been addressed under the Protocol in its programmes of work since it came into force in 2005. The first workshop under the Protocol on small-scale water supplies in the pan-European region was conducted on 26 and 27 November 2008 in Bad Elster, Germany. A wide range of experts from within the European Region shared their experiences and evidence related to challenges commonly encountered in small-scale water supplies, as well as information on management approaches and good practices. Discussions revealed the need for strengthening the evidence base supporting improvements of small-scale systems, targeted advocacy and awareness-raising materials, and human resource development (capacity building). Overall, the meeting concluded that small-scale water supplies require more attention and, as a result, for the first time a specific programme area under the programmes of work under the Protocol was established in 2010.

Spotlight on certain issues...

The work initially focused on specific issues, such as the promotion of the Water Safety Plan (WSP) approach for safe management of small-scale water supply systems and later shifted towards paying more attention to small-scale sanitation, including through a region-wide meeting focusing on the specifics of on-site sanitation systems in October 2022. Over the years, Parties to the Protocol and other countries increasingly reported on national activities for improving the situation of small-scale systems. The focus on sanitation, safe management and financing of small-systems also increased over time under the Protocol (Box 2).

Publications on small-scale water supply and sanitation systems under the Protocol

The workshop in 2008 resulted in a compilation of evidence, country case studies and good practices: the awareness-raising document *Small-scale water supplies in the pan-European region. Background. Challenges. Improvements* (WHO EURO 2011).

The publication *Water safety plan: a field guide to improving drinking-water safety in small communities* (WHO EURO 2014) provides a step-by-step introduction to the WSP approach and a range of ready-to-use templates to assist small-scale water supplies in developing and implementing their own WSPs. The field guide particularly addresses the rural community members responsible for the operation and management of their water supplies, as well as the staff of the local health and water supply offices responsible for safeguarding drinking-water quality and nongovernmental organizations that support drinking-water safety in rural communities.

To improve the evidence-base on small-scale water supplies and to gain a better overview of the status quo throughout the Region, information on those systems was gathered under a survey. Findings are summarised in the publication *Data on the Status of small-scale water supplies in the WHO European Region* (Rickert et.al. 2016) which intends to inform policy-making and the formulation of intervention strategies and to help identify needs for further action under the Protocol. It also documents prevailing data gaps on small systems.

The publication *Taking policy action to improve small-scale water supply and sanitation systems. Tools and good practices from the pan-European Region* (WHO EURO 2016) aims to support effective policy action and promote good practices for creating an enabling environment in which to improve the situation of small-scale systems. It introduces a variety of tools available to policy-makers and highlights how these can be tailored to the particular circumstances of small-scale systems, supported by case studies showing how countries have acted to improve the situation. It assists policy-makers in formulating specific targets for small-scale systems and in planning concrete actions for their achievement.

Costing and financing of small-scale water supply and sanitation services (WHO EURO 2020) was published to guide national and subnational policy-makers in defining strategies for the sustainable financing of service provision through small-scale water supply and sanitation systems.

Active exchange at sub-regional and national levels...

Sub-regional workshops on improving small-scale systems were conducted in Minsk, Belarus (15-17 March 2017), in Belgrade, Serbia (10-12 October 2017) and in Dessau, Germany (18-20 June 2018), attended in total by 27 countries of the pan-European Region. The objective of these workshops was to facilitate a sub-regional exchange of experiences relating to safe and sustainable small-scale water supply and sanitation systems in rural areas, and to promote good practices to improve the safety and sustainability of such services. The workshops all resulted in recommendations on the way forward, including aspects of uptake of WSP and Sanitation Safety Plans (SSP), risk-based surveillance, qualification of staff and sustainable financing.

Complementing the regional workshops, several in-country consultations and field activities were organised under the Protocol (e.g. in Albania, Georgia, Kyrgyzstan, North Macedonia, Serbia, Tajikistan and Uzbekistan), which supported the generation of evidence on the status of small-scale systems, promoted national adoption of the WSP approach, facilitated cross-sectoral exchange and networking among national decision-makers, and led to country-specific commitments for follow-up.

DRAFT

3 Methodology and data reviewed

27 of the 53 countries of the pan-European Region are Parties to the Protocol and therefore need to set targets within 2 years of becoming a Party. As of 21 September 2021, 23 Parties have set targets under the Protocol (see <https://unece.org/environment-policy/water/protocol-on-water-and-health/targets-set-parties>). Although small-scale water supply and sanitation systems are not a separate target setting area according to Article 6 (2) of the Protocol, several countries have set targets relating to small-scale systems in a number of target-setting areas.

In preparation to the 5th session of the Meeting of the Parties to the Protocol (Belgrade, 19-21 November 2019), countries submitted national summary reports in accordance with the Art 7 of the Protocol. In total, 33 national summary reports were submitted. Reports of this 4th reporting cycle by Parties and other states were analysed in conjunction with the official targets set to extract information on targets set, achievements made and activities undertaken in relation to small-scale water supply and sanitation systems. In some cases, the data reported under the Protocol, including the years for which data was reported, differed between the reporting cycles. No re-validation of data has been carried out for this study, assuming that the Parties reported validated data. Azerbaijan and Finland set or updated targets in 2019, Bosnia and Herzegovina, Czechia and Spain in 2020, and Belarus Germany and Portugal in 2021, after the finalization date for the national summary reports in 2019.

Access to drinking-water and sanitation services was analysed based on data from the WHO/UNICEF Joint Monitoring Programme on Drinking Water, Sanitation and Hygiene (JMP). Drinking-water quality was assessed using the data reported in the 2019 national summary reports of the Protocol. Data from the reports on common indicators on rural and urban areas were assessed to document data availability on rural areas, disparities between urban and rural areas, as well as overall progress in rural areas.

An online survey was conducted to collect more detailed information on targets set by Parties with respect to small systems, as well as activities supporting their implementation. Individual e-mails were sent on December 11, 2020 to the countries of the pan-European region, including Parties and non-Parties, inviting them to participate in the online survey with 12 main questions (partly with further sub-questions, depending on the chosen answer). The survey contained a version for Parties and one for non-Parties, and was provided in both English and Russian. The questions focused on targets set under the Protocol and the related measures to reach the targets. The effectiveness of those measures was also inquired. For non-Parties, the terminology was adapted. Feedback was requested by the end of January 2021. Furthermore, countries were invited to indicate a contact person in the survey, who would be able to participate in a follow-up in-depth interview. In total, 20 responses were received (15 from Parties to the Protocol, 5 from non-Parties) to the online-survey. One country that is a Party submitted 2 responses, and only the non-contradictory responses were included in this publication.

In October and November 2021, 6 in-depth interviews were conducted with representatives of Czechia, Germany, Hungary, Norway, Serbia and the United Kingdom (England and Wales) with known activities on small systems to gather more detailed country examples.

Meeting reports of sub-regional meetings on small systems, as well as reports of other Protocol-meetings such as the Working Group on Water and Health, were also reviewed for information on targets and activities on small systems.

4 Results

4.1 Access to and quality of drinking-water and sanitation services in rural areas

4.1.1 Access to drinking-water and sanitation services

Table 1 provides the definitions for drinking-water and sanitation service levels as applied by the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) (source: <https://washdata.org/monitoring>, accessed 25 March 2022).

Table 1: WHO/UNICEF JMP's definitions of drinking-water and sanitation service levels in households

Drinking-water service levels	Sanitation service levels
<p>SAFELY MANAGED Drinking water from an improved water source that is accessible on premises, available when needed and free from faecal and priority chemical contamination</p>	<p>SAFELY MANAGED 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</p>
<p>BASIC Drinking water from an improved source, provided collection time is not more than 30 minutes for a roundtrip including queuing</p>	<p>BASIC Use of improved facilities which are not shared with other households</p>
<p>LIMITED Drinking water from an improved source for which collection time exceeds 30 minutes for a roundtrip including queuing</p>	<p>LIMITED Use of improved facilities shared between two or more households</p>
<p>UNIMPROVED Drinking water from an unprotected dug well or unprotected spring</p>	<p>UNIMPROVED Use of pit latrines without a slab or platform, hanging latrines or bucket latrines</p>
<p>SURFACE WATER Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal</p>	<p>OPEN DEFECCATION Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches and other open spaces or with solid waste</p>

Access to safely managed drinking-water services in the pan-European Region increased from 88 % to 92 % between 2005 and 2020. Whereas access rates to safely managed sanitation services were lower in the same years, there was a stronger increase from 63 % to 70 % (see Figure 1).

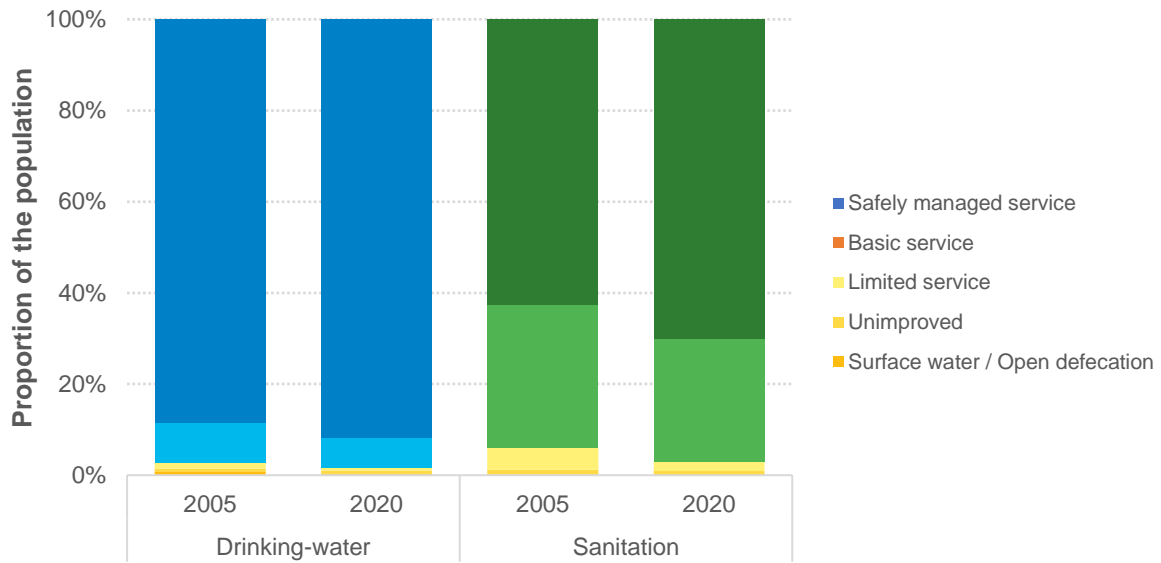


Figure 1: Development of population coverage rates of safely managed drinking-water and sanitation services between 2005 and 2020 (source: WHO/UNICEF JMP data)

The data sets show disparities in two aspects: access in rural areas¹ is lower than in urban areas, and access to sanitation is lower than access to drinking-water.

Disaggregated data on safely managed drinking-water and sanitation services reveals differences between urban and rural areas² (see figures 2 and 3). In the case of drinking-water, access rates to at least basic services increased from 93 % to 97 % in rural areas and remained at a high level around 99 % urban areas between 2005 and 2020, narrowing the geographical inequality gap. For sanitation, access to at least basic services is generally lower than for drinking-water, and improved between 2005 and 2020 from 87 % to 93 % in rural areas and from 97 % to 98 % in urban areas (see figures 2 and 3).

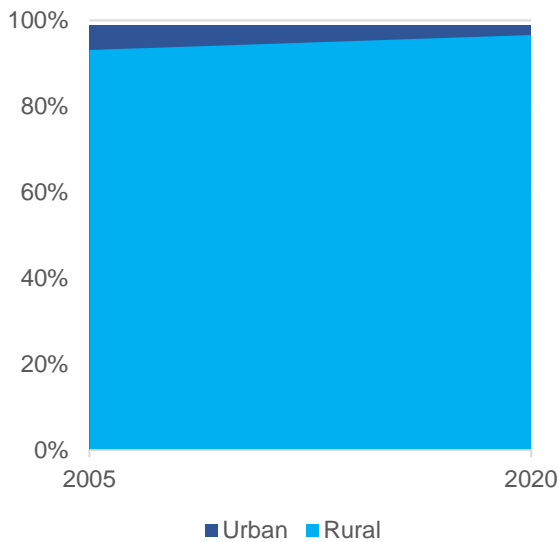


Figure 2: Access to at least basic drinking-water services in rural and urban areas (source: WHO/UNICEF JMP)

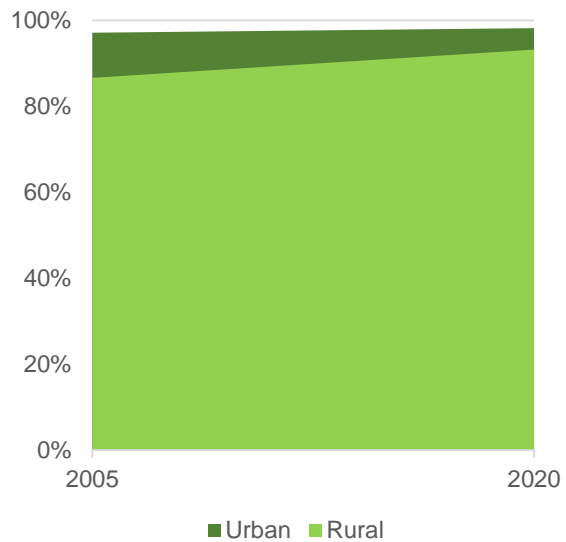


Figure 3: Access to at least basic sanitation services in rural and urban areas (source: WHO/UNICEF JMP)

² There is no globally applicable definition of rural areas. JMP data and the UN does not use its own definition but follow the definition that is used in each country. In the European region, for example, the transition between urban and rural settlements is at a population of 5,000 and a population density of 300/km² as per Eurostat definitions. Small systems typically prevail in these areas.

Such regional overviews can mask more profound differences at country level. In 2020, access to at least basic drinking-water services ranged between 91 % (minimum) and 100 % (maximum) with an average of 99 % in urban areas. Access rates in rural areas, on the other hand, displayed a greater range of 77 % and 100 %, with an average of 97%. Regarding at least basic sanitation services, access rates varied between 87 % and 100 % in urban areas (average: 98%) and 72% and 100% in rural areas (average: 95%). Figure 4 depicts the ratios of access rates to at least basic drinking-water and sanitation services in urban to rural areas in each country. A ratio greater than 1.0 indicates higher access rates in urban areas whereas a ratio below 1.0 stands for higher access rates in rural areas. The figure shows that access to at least basic services is typically higher in urban than in rural areas for both drinking-water and sanitation.

DRAFT



Notes: No drinking-water ratio available for Croatia, Estonia, Italy, Monaco, San Marino and Slovenia; no sanitation ratio available for Azerbaijan, Bosnia and Herzegovina, Monaco, San Marino and Slovenia.

Figure 3. Ratio of access rates to at least basic drinking-water and sanitation services in urban to rural areas (Source: WHO/UNICEF JMP)

Besides geographical inequalities, i.e. differences between urban and rural populations, economic disparities in access to basic drinking-water and sanitation services also exist in countries in the pan-European region. Examining access rates to basic services of wealth groups for 16 countries revealed profound differences between the poorest and the richest quintiles. Integrating the geographical and economic dimensions showed that it is often the poorest people in rural areas who are the most disadvantaged regarding access to basic drinking-water and sanitation services.

4.1.2 Drinking-water quality

In the fourth reporting cycle under the Protocol (2019), Parties to the Protocol were asked in the reporting template for the first time to differentiate drinking-water quality data by rural and urban areas. Nevertheless, 7 countries already reported disaggregated data on exceeded limits of *E.coli* in urban areas in the previous cycle in 2016, and one country (Hungary) even for both urban and rural.

Only 10 countries and regions were able to provide segregated data on compliance with *E. coli* in drinking-water for urban and rural areas in 2019; in addition, 4 countries and regions reported data for urban areas only³. The data in Table 2 show that in all reporting countries and regions the share of non-compliant samples is higher in rural areas compared to urban areas, ranging between 0.43 % (Spain) up to 33 % (Serbia).

Table 2: Non-compliance rates for *E.coli* reported under the Protocol on Water and Health in the previous (2016) and current (2019) reporting cycle

Country	Reporting Cycle	Non-compliance rates for <i>E.coli</i> [%]	
		urban	rural
Azerbaijan	previous	-	-
	current	3.75	6.60
Belgium (Brussels)	previous	0.00	-
	current	0.00	-
Belgium (Wallonia)	previous	0.23	-
	current	0.13	1.40
Belarus	previous	0.66	13.20
	current	0.95	17.70
Croatia	previous	-	-
	current	0.20	29.50
France	previous	0.10	-
	current	0.10	-
Hungary	previous	0.40	0.90
	current	0.30	0.60
Lithuania	previous	0.00	-
	current	0.00	-
Luxembourg	previous	0.35	-
	current	0.45	-
Portugal	previous	-	-

³ Belgium reported for Brussels and Wallonia

	current	0.10	0.91
Romania	previous	-	-
	current	0.16	2.99
Serbia	previous	0.11	
	current	0.13	33.1
Spain	previous	-	-
	current	0.03	0.43
Uzbekistan	previous	-	-
	current	4.2	7.1

DRAFT

For countries and regions that reported separately on chemical drinking-water quality in urban and rural areas in the current reporting cycle, non-compliance rates for arsenic, fluoride lead and nitrate tended to be higher in urban than in rural areas (Table 3).

Table 3: Non-compliance rates for chemical parameters reported under the Protocol on Water and Health in current (2019) reporting cycle

Country	Non-compliance rates for parameters [%]							
	Arsenic		Fluoride		Lead		Nitrate	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Belarus	0	0	0.4	0.4	0	0	0.5	0.6
Belgium (Wallonia)	-	-	-	-	1.8	4.5	0.1	0.1
Croatia	6.5	11.1	0	0	0	0	0	1.6
Hungary	3.2	5.6	0.3	0.3	2.1	1.3	0.3	0
Portugal	1.0	2.5	0.1	0.2	0.8	2.0	0	0.2
Romania	1.0	4.6	0.7	0	0	0.4	0.5	4.8
Serbia	0.1	7.4	-	-	-	-	0	6.4
Spain	0.1	1.3	0.1	0.7	0.3	0.3	-	-
Uzbekistan	0	0	0	0	0	0	0.8	0.9

4.1.3 Data summary

The data reviewed shows that access to drinking-water and sanitation services is lower in rural than in urban areas, and that access to sanitation lags behind access to drinking-water. This shows that further action is required to increase access in rural areas, particularly to sanitation, in order to achieve the targets of Sustainable Development Goal 6 to achieve access for all to safe drinking-water and adequate and equitable sanitation services by 2030.

The information reported on drinking-water quality in rural systems under the Protocol indicates that there is rather little information available that is disaggregated for rural systems. This is also in line with other information sources: the European Commission for example also concluded in its report on drinking-water quality that additional information is needed to get a better picture of the exact situation in small systems. For this publication, only data reported under the Protocol was reviewed, and the information available for both urban and rural systems shows that quality tends to be better in urban systems, both for microbial as well as for chemical parameters.

No data is gathered under the Protocol on safety aspects of sanitation services, e.g. whether or not facilities are shared with other households and whether excreta are safely disposed of in situ or removed and treated offsite.

4.2 Targets set and other activities under the Protocol to improve small systems

4.2.1 Focus of targets and other activities

Access (especially in rural areas) to sanitation is significantly lower than that to drinking-water. There is therefore a greater need for action to improve sanitation in rural areas. However, the majority of activities and targets appears to focus on drinking-water.

Even though access to drinking-water is generally better than to sanitation, there is still a need for action, especially in rural areas.

In the online survey, 14 of 15 countries and regions stated to have set targets under the Protocol specifically on small systems. Twice as many countries and regions focused on drinking-water compared to sanitation (6 vs. 3), while 5 of 14 countries and regions reported no focus on drinking-water or sanitation. None of the countries and regions provided details on why the focus was chosen.

The interviews suggested that there being more action on drinking-water than on sanitation may be due to the following reasons:

- the lower level of access to sanitation, as action on sanitation would typically have to have a stronger focus on infrastructure improvements which require higher financial input than e.g. action to improve management approaches
- collaboration between institutions working on different thematic areas and continuous information exchange appear somewhat more challenging than during initial target-setting,
- there being less information available on sanitation than on drinking-water
- in cases where the process of implementing the Protocol is lead by the ministry of health or another responsible body working on drinking-water, they may put more emphasis on drinking-water which is in their area of responsibility, rather than on sanitation
- while some kind of drinking-water supply is needed in all settings, this is less so the case for sanitation.

2 countries and regions indicated in the online survey that their targets focused on small public systems, and 1 country or region that they focused on on-site systems. All of these responses related to targets on drinking-water. 10 countries and regions responded that their targets focused on both – small public and on-site – systems, of which 2 had focused their targets on sanitation, 3 on drinking-water, and the rest had no focus on one of them only. This indicates that most countries and regions addressed both on-site systems, as well as small public services for small drinking-water and sanitation systems.

2 countries and regions provided additional information on the rationale why they focused on both on-site systems as well as public systems during the interviews. In these countries, the population not connected to public systems was 2-5 %, and some information was available that compliance was lower in small public and in on-site systems than in large systems. This indicated a need to address both types of systems. However, as it was easier to address small public systems directly, targets for on-site systems (where such requirements were more minimal in comparison) rather focused on capacity building for operators.

Regarding on-site systems, information reported included the following:

- One of the Parties stated that the new legal requirements in the EU Drinking Water Directive on equitable access were used to identify the population that is served by private wells, and to develop an inventory of on-site systems and thus improve the evidence base.
- One non-Party stated that it was not compulsory for private wells to register, and that they therefore also only have estimates of the number of these systems.
- Another Party stated that there were insufficient resources to follow up if on-site systems did not register.

The online survey asked about established measures to reach the targets set. 15 countries and regions responded to have established such measures and categorised them as follows (multiple answers were possible):

- Increasing awareness/capacity of operators (10)
- Implementing legal/regulatory changes (9)
- Improving management and safety of services (9)
- Improving monitoring and surveillance (9)
- Improving evidence base (8)
- Implementing infrastructure measures to improve access to safe systems (8)
- Improving data management infrastructure (6)
- Supporting institutional collaboration and cooperative arrangements (5)
- Improving the financial situation of small-scale systems (2)
- Introducing strategic planning to enable sustainable operation (2)

4.2.2 Challenges and success factors

During the online survey, Parties where the implementation of measures to achieve the targets had not started yet stated that this was due to limited financial resources (3 responses), political reasons (2), time constraints (1) and organizational reasons (1). 1 Party elaborated that regarding a target for small scale sanitation, a constraint was that large agglomerations had priority for wastewater collection and treatment due to EU obligations.

Furthermore, information on challenges and success factors was gathered during the in-depth interviews.

Limiting factors and challenges reported by Parties included

- identifying realistic targets and moving from the documentation to actual implementation,
- limited resources (both staff resources at the national level as well as resources for implementing additional measures at the local level),
- lack of funding for achieving targets relating to small-scale sanitation,
- problems for local operators to obtain information about available subsidy programmes,
- slowed down progress of work during the COVID 19 pandemic
- finding a balance between providing sufficient information to operators, while not making the operational decisions for them,

- lower compliance in areas where the local authorities were less active and did not regularly contact operators, and
- increased derogations in compliance which may partly be due to improved monitoring.

Success factors reported by Parties included

- possibility to analyse more parameters at a lower price due to availability of new technology,
- actively involving operators of small-scale drinking-water and sanitation systems in physical, rather than on-line, seminars and workshops for direct interaction (which is picking up compared to the beginning of the COVID 19 pandemic),
- showing good examples from implementation of approaches within the country, e.g. WSP,
- providing templates and hands-on guidances, e.g. for implementing WSPs, and
- involving local authorities and water supply associations in developing guidance and reaching small systems (less so for on-site systems, as they are not included in the associations).

4.2.3. Country good practice examples

Information on experiences and good practices were gathered from the official reports, the online survey, information shared in regional meetings under the Protocol, as well as from in-depth interviews, and categorised by types of measures.

Most activities that have a focus on raising awareness and building capacity address drinking-water, and target competencies of operators of small-scale water supplies, including of private wells. To a lesser degree, they also address local authorities and the public.

A number of activities on legislation and regulation were reported by countries and regions, all of which focused on drinking-water.

Establishing a register of private wells, partly also other drinking-water supplies in rural areas, is one emphasis of the activities that aim to improve the evidence base. Another is improving testing in small drinking-water supplies and communicating results. In two countries, registers of small sanitation systems should also be developed.

Scaling up the application of WSPs, including support through tools, is a main aspect of activities on improving the safe management of services, while two countries also address improving the management of small sanitation. A number of the country activities address WSPs with respect to capacity building and establishing respective legal requirements. Further activities aim at improving compliance in small-scale drinking-water and sanitation systems.

Activities on improving monitoring and surveillance of small systems appear to refer to both drinking-water and sanitation, partly also related reporting.

Half of the activities to improve access to safe systems refer to both small-scale drinking-water and sanitation systems. Improving access to safe systems thus shows the strongest emphasis on action to improve sanitation.

Limited emphasis was reported regarding improving the financial situation of small systems, with only two activities aiming at this focus area.

Table 4 shows targets and activities relating to small systems and rural areas reported by countries in the pan-European Region at sub-regional workshops and meetings, as well as in the country reports under the Protocol on Water and Health.

DRAFT

Table 4: Targets and activities relating to small systems and rural areas by countries in the pan-European Region

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
Albania	Developed a training programme for small systems' operators; training and certification mandatory for all water sector employees who operate or manage water supplies	X	X	X							
	List of private wells	X				X					
	Drafted a roadmap for WSP implementation and adopted national WSP guidelines for small-scale systems and piloted their application as a basis for scaling-up.	X					X				
Armenia	Held a national consultation on small-scale water supply and sanitation systems in 2015, and developed minimum requirements for operators in order to address small-scale water supplies that were not managed by organized entities	X	X	X							
Austria	Has published online booklets for private wells and checklists and templates for small systems' operators	X		X							
	Small suppliers are obliged to present the results of water samples once a year to relevant authorities, to construct and maintain the water system according to technical standards, to inform the people supplied about water quality and to attend training for small supply providers	X					X				

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
Belarus	Implemented a project to pilot risk assessment of small systems in a large province.	X				X					
	Proportion of drinking-water samples which fail to meet the microbiological parameters of safety in rural areas does not exceed 10%	X						X			
	Proportion of samples which fail to meet the health-related chemical parameters does not exceed 12% in the whole country; 25% in rural areas										
	Level of the population's access to the centralized water supply: 98.0% - for the population of regional and district centers and cities of regional subordination and urban settlements; 83.5% - for the population of agro- towns	X	X							X	
	Reaching 32.5 % of the rural population's access to the centralized and local sewerage systems										
Belgium	Plan to provide checklists for risk assessment, and small private water suppliers are obliged to carry out a risk assessment	X					X		X		
Bosnia and Herzegovina	Baseline analysis of rural WSS focus on drinking-water quality	X				X					

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
	Register of small supplies to improve monitoring and control of drinking-water and health										
	Requires everyone who works with food or water to be trained and certified every four years	X		X							
Bulgaria	Projects were conducted to promote the WSP approach in rural settings, in particular in schools.	X					X				
Croatia	Preparing educative materials on good management practice of small community water supply systems and private wells	X		X							
	Training of operators and education of the residents in order to raise awareness on water-related disease										
	Reducing number of small-scale non-registered water supply systems (for systems providing water for more than 50 inhabitants)	X				X					
	Developing WSP for small community water supply systems	X					X				
	Started monitoring small community-managed supplies after acceding the EU	X	X						X		
	Establish supervision and control over small-scale (local and individual) water supply systems										

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
	Establish supervision over individual sanitation systems is planned through the establishment of water "monitors"										
	Growth of percentage of access to public water supply system from present average 75% to average 85% to 90%, including small local systems presently unsupervised	X								X	
	Inclusion of local water supply systems into public water supply systems to increase access to safe drinking water.										
Czechia	Re-issue or update awareness-raising materials about wells	X		X							
	New ordinances for health protection and hygiene requirements for drinking-water include mandatory risk assessment, its evaluation and a specific programme of monitoring (also for small-scale water supply and sanitation systems)	X			X						
	Conducted cost-benefit analysis for implementing WSP which found that costs, including for small systems, were feasible. There were also no complaints from operators regarding high costs, and many of them reported appreciating the approach due to better system	X					X				

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
	understanding and a thorough basis for improvements and investments.										
	Reduce the number of instances of non-compliance with drinking water quality limit values for supplies serving < 5,000 inhabitants up to 1% to 3%. Continuously improve drinking-water quality from public drinking-water supplies and process and approve risk assessments (WSP) for the public drinking-water supply system (as part of the operation rules). Targets are set for all water mains for public use, not just small-scale water supplies. Ensure high-quality and adequate wastewater treatment in small agglomerations with < 2,000 inhabitants where public sewers exist	X	X					X			
	Ensure that inhabitants of areas with low population density can connect to the public mains with financial support from the state, although this measure will not have a significant impact on the total number of supplied inhabitants.	X								X	

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
England and Wales	Requirement to risk-assess private supplies and review after max. 5 years Tool for risk-assessment available, which is currently converted from an excel-based to a webbased tool.	X					X				
	Yearly national report on overall risk and compliance trends includes case studies which are used for educating local authorities on improving private wells	X		X							
Estonia	Established register of individual supplies	X				X					
	Increasing of the total number of persons who are supplied with safe drinking water and to ensure appropriate sewage collection and treatment for all the residents	X	X							X	
Finland	Operator competency is tested through a series of 30 questions (20 general and 10 specific) chosen at random from a set of approximately 600, with the option to select specialist areas (treatment in waterworks or distribution networks). The certificate of competency, which is valid for five years, has already been granted to more than 52,000 people. The overall positive results are regularly trained staff, improved knowledge among employees and workers paying more attention to their methods	X		X							

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
	Since 2006 regular tests have also been required to prove competency concerning water treatment technology from source to distribution, monitoring, legislation and water hygiene. The tests are obligatory for supplies providing more than 10m ³ /day or serving more than 50 people, but are voluntary for smaller supplies	X				X					
Finland	Requiring WSP for small supplies	X					X				
France	Called for the same level of service provision for small and large supplies and the promotion of water safety plan and sanitation safety plan approaches	X	X				X				
	Had undertaken sanitary surveillance regardless of population size served								X		
Georgia	Training local authorities, developing awareness-raising materials and translating WHO materials into Georgian	X		X							
	Conducted a situation assessment of small-scale water supplies in rural areas	X				X					
Germany	Promoted the use of a practical guide for small-scale systems and of WSP training materials	X		X							
	Developed guidance for water operators and local health agencies to support surveillance										

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
	<p>Publishing regular reports and consumer information on drinking-water quality in water supply zones that deliver > 10 m³/d or supply > 50 PE.</p> <p>Has taken action to improve the evidence base related to the status of private wells</p> <p>Improving the safety of small drinking-water supplies and improve access to information and reporting.</p>	X				X					
Hungary	Developed simplified guidance for private well owners	X		X							
	WSP in small supplies (including the development of an online tool and guidance on auditing)	X					X				
	Proposed (not yet adopted) targets address template for WSP and risk management in single household										
	Reducing microbiological non-compliance in small water supplies (< 5,000 PE).	X						X			
	Development of wastewater treatment in agglomerations below 2,000 PE	X	X							X	

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
	Proposed (not yet adopted) targets address development of wastewater treatment in agglomerations < 2,000 PE and the development of methodology provide the entire population using public supplies with drinking water from safely managed services										
Ireland	Provides a handbook to support the implementation of regulations for all types of small-scale water supply and sanitation systems, as well as checklists, templates and guidance for construction and maintenance of private wells. Furthermore, guidelines on producing WSPs for small supplies and training for local authorities are available on request.	X		X			X				
	Will require group schemes to have mapped protection zones	X					X				
	A number of financial tools are available to support small supplies	X									X
Italy	Produced awareness-raising booklets for small-scale water supplies	X		X			X				
	Register of large and small supplies	X				X					

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
	Requiring WSP for small supplies	X					X				
Kyrgyzstan	A capacity-building workshop on WSP was conducted in 2014, and a national workshop on small-scale water supply and sanitation in 2015 Conducted follow-up workshops at the subnational level Revised the national targets for scaling up WSP implementation in small systems and developed technical standards for village water supplies	X	X	X			X				
Lithuania	Conducting trainings and mass media campaigns for the majority of small suppliers	X		X							
	Testing of water from dug wells used by pregnant women and infants	X				X					
	Plan to provide checklists for risk assessment	X					X				
Luxembourg	Produced awareness-raising booklets for small-scale water supply and sanitation systems.	X		X							
	Local governments had been given greater responsibility for ensuring the provision of safe drinking water services. An online water safety plan tool was developed and piloted, including for all supplies serving small communities	X					X				

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
Montenegro	Conducting analysis of water supply in rural areas, taking into account the health safety of drinking water and hygienic conditions.	X				X					
	Strengthening surveillance of small systems	X	X						X		
Netherlands	Updated the national risk-assessment methodology for small supplies	X					X				
North Macedonia	Updated sanitary inspection forms in line with WHO recommendations	X		X							
	Established some requirements for operators; the national utility association organizes annual trainings for them and is establishing a national training centre. The requirements do not distinguish according to the size of the system										
	Carried out the registration and geographic information system mapping of small systems	X	X			X					
	Allocated funds to the improvement of small-scale systems and rural development	X	X								X
	Planned to overhaul a large proportion of rural water supply schemes by 2030	X								X	
Northern Ireland	A register of private water supplies for risk assessment and monitoring is present	X				X	X				

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
Norway	Developed guidelines on WSPs for small systems	X		X			X				
	Established an inventory of small systems	X	X			X					
	Has an online platform for both registering and reporting (although reporting is not compulsory as for bigger systems)										
	Developing national guidelines for preparing for climate change, as the droughts in 2018 and 2019 were mainly affecting small systems (with challenges such as limited staff and financial resources, and no option to connect to main systems)	X	X				X				
	Working on adaptation of water safety plan for small supply systems in Norway										
Portugal	Annual evaluation of the quality of service provided to users by performing an assessment of the indicators, which allows to verify the effectiveness of the measurements.	X				X					
Republic of Moldova	Awareness-raising campaigns, training courses for water operators and activities to develop normative documents for small-scale water supply systems were implemented	X		X							
	Standards for design and operation of small systems were developed, regional service centres for small service	X			X						

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
	providers set up, minimum qualification requirements for operators defined, tariffs set and maintenance and repair of small systems budgeted for										
Romania	Requires water operators to institute a quality management system Training programmes exist independent of supply size County unemployment centres offer optional training courses. European infrastructure funds are being used for some training Developed WSP guidelines	X		X				X			
	Established a registry of private and public wells	X				X					
	Strengthened the surveillance and reporting of water quality-related incidents and has established a national programme for gathering information on drinking-water monitoring in small systems	X							X		
Scotland	A government grant scheme is in place for small water supplies which is being reviewed and may require WSPs as a prerequisite in the future	X					X				X

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
Serbia	Raise awareness of the population in rural areas	X					X				
	Inform national and local decision makers for improving respective policies and undertaking measures for the better management of SWSS, in order to protect human health and decrease urban vs. rural inequities with respect to access to safe drinking water.										
	Trying to re-establish a hygienic minimum requirement for everyone who comes in contact with food or water										
	There are plans to charge private well owners a minimum fee, which will go at least in part to local operator training										
	Establish legal requirements to implement WSPs	X			X		X				
	Baseline analysis of drinking water supply systems in rural areas	X				X					
	Conducted a rapid assessment of drinking water quality in rural areas. Data was gathered on more than 1,100 small water supplies.	X						X			

Country	Target / activity	Drinking-water / sanitation		Focus area(s)							
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation
	Increase sanitary surveillance of drinking water supply systems in rural areas										
	Increase connections to centralized water supply systems in rural areas	X								X	
Sweden	Has a register of very small supplies which includes analysis results as well as further data on the wells, and guidance in easy-to-understand language	X		X		X					
Tajikistan	Projects on WSP and enhanced drinking-water quality monitoring were conducted in rural areas, amongst others leading to the publication of guidance on WSP in rural supplies and an uptake of the approach in legislation	X			X		X				
The United Kingdom	Detailed guidance for owners and local authorities on the operation of private supplies Risk-assessment tool that local authorities in England and Wales use to monitor small private water supplies. Northern Ireland developed a web-based application for risk assessment of private water supplies	X		X			X				
Ukraine	A pilot project had highlighted the clear discrepancy in access between rural and urban areas and the lack of data	X		X							

Country	Target / activity	Drinking-water / sanitation		Focus area(s)								
		Drinking-water	Sanitation	awareness and capacity	legal/regulatory changes	improve evidence base	improve management and safety	improve quality	improve monitoring and surveillance	improve access to safe systems	improve financial situation	
	related to access by vulnerable and marginalized groups. The outcomes had been published in mass media and communicated to governmental agencies to raise awareness and for targeted fundraising											

DRAFT

5 Discussion and conclusions

In rural areas, access to drinking-water services appears to be higher than to sanitation services. Especially in the case of sanitation, there is a lack of comprehensive data on numbers and on safety aspects, such as whether facilities are shared by several households, and on safe disposal practices. As access to safe sanitation in rural areas is significantly lower than for drinking-water, more action would be desirable as a result to support rural sanitation. A first step for countries towards a basic data situation can be the registration of small systems. Increasing action on an improved evidence base by countries would be valuable in providing a better database for taking targeted action.

Regarding drinking-water quality, most countries did not provide segregated data on urban and rural in the reporting under the Protocol, which may result in hiding inequities in exposure to contaminated water. In the few cases where segregated data were provided, it showed that rural areas continue to have water of a lower quality. Compiling more complete data sets, including disaggregated data and more data on sanitation, in the future could improve the evidence base on rural areas and provide a more solid data base for specifying areas for improvement and taking respective action.

The number of activities and targets on small systems taken by countries in the pan-European Region shows the importance to improve these systems as well as their enabling environment. In addition to the official targets set by Parties to the Protocol, countries also reported numerous additional activities on this topic.

Countries report many more targets and activities to support small-scale drinking-water systems than sanitation systems, although access to safe sanitation is lagging behind drinking-water. For example, a number of countries are developing registers for small water supplies, including private wells, but only very few for sanitation, and none has reported developing a register for on-site sanitation systems. Furthermore, none of the regulatory targets for small systems focuses on sanitation, and most activities on safe management address drinking-water supplies only. This may partly be due to the area of competence of those active under the Protocol and leading the target setting process, however, countries are encouraged to consider increasing the activities and targets for small-scale sanitation systems, including improvement of the evidence base as a first step to taking action. The targets and activities by Parties and other countries also show limited integrated action that addresses both drinking-water and sanitation at the same time. This would however be particularly beneficial for the systems in rural areas, and could be strengthened in future target setting and action plans.

Targets and activities focus on both small public, as well as on-site systems. The targets for the types of systems typically differ, with a focus on awareness raising and registers for systems relating to on-site systems, and a broader range of activities for small public systems.

Success factors reported by Parties included conducting physical trainings for operators of small-scale drinking-water and sanitation systems, showing good examples from within the country, as well as providing templates and hands-on guidances. On the other hand, Challenges reported by Parties included limited resources and identifying realistic targets.

It is a positive development that many countries in the pan-European region take action to improve the situation of small systems. For example, safe management of small systems, particularly the application of the WSP approach, stands out as one of the most prominent cross-cutting topics that countries are focusing on not only in increasing the application of

risk management approaches, but also in creating an enabling environment through capacity building and regulatory frameworks. Furthermore, many activities focus on strengthening the evidence base of small water supply systems, which could later become the basis for taking future action for improvement.

The Protocol is a good tool to gather information on action taken to improve the situation of small-scale water supply and sanitation systems. It provides a platform for countries to exchange experiences during workshops and through regular reporting on targets set and the status of the systems. Small-scale water supply and sanitation systems have been a priority area under the Protocol from the start, and a number of sub-regional and national activities support the importance of this issue. Under this programme area of the Protocol, tools are developed and good practices collected to inspire further action in the countries of the region.

In order to scale up improvements for small-scale sanitation in rural areas, countries are encouraged to continue taking action, and to consider increasing the activities and targets for small-scale systems, particularly small-scale sanitation, to take inspiration from the examples of action already taken, and to continue their work towards availability of safe services for all living in rural areas.

, and special attention is given to sanitation in this study, as small sanitation systems are often neglected, and access is lower than for drinking-water

6 Literature

Data of the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), accessible online at <https://washdata.org/>

European Commission (2016): Report From the Commission: Synthesis Report on the Quality of Drinking Water in the Union examining Member States' reports for the 2011-2013 period, foreseen under Article 13(5) of Directive 98/83/EC

Rickert et.al. (2016): Status of small-scale water supplies in the WHO European Region

WHO Regional Office for Europe (2017): Meeting report subregional workshop on improving small-scale water supply and sanitation for better health. 15-17 March 2017 Minsk, Belarus

WHO Regional Office for Europe (2018): Meeting report subregional workshop on improving small-scale water supply and sanitation for better health. 10-12 October 2017 Belgrade, Serbia

WHO Regional Office for Europe (2018): Meeting report subregional workshop on improving small-scale water supplies for better health in European Union countries. 10-20 June 2018 Dessau, Germany

WHO Regional Office for Europe (2011): Small-scale water supplies in the pan-European region. Background. Challenges. Improvements

WHO Regional Office for Europe (2014): Water safety plan: a field guide to improving drinking-water safety in small communities

WHO Regional Office for Europe (2016): Taking policy action to improve small-scale water supply and sanitation systems. Tools and good practices from the pan-European Region

WHO Regional Office for Europe (2020): Costing and financing of small-scale water supply and sanitation services

WHO Regional Office for Europe and UNECE (2020) Guidelines on the setting of targets, evaluation of progress and reporting under the Protocol on Water and Health

DRAFT

Annex 1 – Questionnaires of the online survey

Introduction

One of the activities included in the Programme of Work for 2020 – 2022 under the Protocol on Water and Health is to analyse the information available on small-scale water supply and sanitation systems.

This inquiry focusses on targets set by Parties to the Protocol towards improving the situation of small-scale water supply and sanitation systems and key improvement actions towards reaching the targets.

The exercise also addresses other states that are not a Party to the Protocol and wishes to explore improvement programmes or actions that have been taken or are planned.

The goal of this inquiry is to

1. support gaining a regional overview and improve the evidence base on small-scale systems;
2. identify data gaps and needs with respect to small-scale systems;
3. support Parties and other states in target setting and developing national policies and strategies to improve small-scale systems.

The information you provide will be included in publications on small-scale water supply and sanitation in the European Region.

Terminology

For the purpose of this data collection exercise, we applied the following terminology in line with the *Guidelines on the setting of targets, evaluation of progress and reporting under the Protocol on Water and Health* (<http://www.unece.org/index.php?id=11644>) and the current reporting template of the Protocol:

Small-scale water supply and sanitation systems (small-scale systems) include both individual systems and small centralized systems.

Target: Parties to the Protocol on Water and Health need to establish national and/or local targets. Targets should be understood in a very broad sense and not necessarily as quantifiable parameters only. A target is a commitment made to achieve a specific level of protection of human health, water resources and/or quality of service.

Measure: Each target is linked to a defined set of measures. In target setting, Parties should consider that progress needs to be assessable either by quantitative or qualitative indicators. Therefore, to be effective, each measure should have timelines, defined responsibilities for implementation and needs to be assigned sufficient resources.

Action plan refers to a set or programme of measures to reach the targets set. The implementation of the programme of measures shall guarantee that the target is achieved. These measures can be classified into various categories (see question 3.1).

Activities refer to any action that aim at improving small-scale systems or programmes of such actions but are not formally set targets.

Written inquiry (Parties to the Protocol)

General

1. Have you set targets regarding small-scale systems? (y/n)

If yes: 1.1 Do the targets focus either on sanitation or on drinking-water only? (y/n)

If yes: 1.1.2 Why was this focus chosen? *(Please elaborate in a short statement of max. 500 characters.)*

If yes: 1.2 Do the targets focus either on sanitation or on drinking-water only? (mc: *sanitation; drinking-water; no focus*)

If *sanitation/drinking-water*: 1.2.1 Why was this focus chosen? *(Please elaborate in a short statement of max. 500 characters.)*

If yes: 1.3 Do the targets focus on small public systems, onsite systems or both? (multiple choice: *1. small public systems; 2. onsite systems; 3. both; 4. none*)

If *1. small public systems; 2. onsite systems*: 1.3.1 Why was this focus chosen? *(Please elaborate in a short statement of max. 500 characters.)*

If no: 1.4 Do you implement, or plan to implement, any other activities, which are not formal targets set under the Protocol? *(Please elaborate in a short statement of max. 500 characters.)*

Targets

2. What is the overarching goal for the set targets and/or other activities? *(Please elaborate in a short statement of max. 500 characters.)*

3. Did you establish any measures to achieve the set targets and/or other activities? (y/n)

If yes: 3.1 Can you categorize these measures? *(drop-down menu; multiple answers possible)*:

- Implement infrastructure measures to improve access to safe systems
- Improve evidence base
- Increase awareness/capacity of operators
- Improve data management infrastructure
- Improve the financial situation of small-scale systems
- Implement legal/regulatory changes
- Improve management and safety of services
- Improve monitoring and surveillance
- Introduce strategic planning to enable sustainable operation
- Support institutional collaboration and cooperative arrangements

4. If the implementation of measures has not started yet, what were the main reasons for this fact? *(drop down menu; multiple answers possible)*

- Time constraints
- Limited financial/other resources

- Organizational reasons
- Political reasons
- Other (please specify)

(If the implementation of measures has not started yet, you successfully completed the inquiry. You can add additional comments in the last section. Thank you very much for contributing your time and knowledge. We will contact you in the further process of data gathering.)

(If the implementation of measures is ongoing or completed, please complete the following two sections.)

Measures

5. Can you name the person(s)/ institution(s) mainly responsible for the implementation of measures? *(If possible, please enter name(s) and contact details.)*
6. Was a budget for the implementation of measures assigned? (y/n)
If yes *(please elaborate in a short statement of max. 500 characters.)*
7. Did you perform a kind of cost-benefit analysis of target(s) or other activity(ies)? (y/n)
If yes *(please elaborate in a short statement of max. 500 characters.)*

(If the implementation of measures is still ongoing, you successfully completed the inquiry. You can add additional comments in the last section. Thank you very much for contributing your time and knowledge. We will contact you in the further process of data gathering.)

(For measures that have been completed, please go to the following section.)

Effectiveness

8. How would you assess the impact of already completed measure(s)? *(drop down menu)*
 - Highly effective
 - Effective
 - Not highly effective
 - No impact at all
9. Did you assess/verify the effectiveness of the measures? (y/n)
If yes: *please elaborate in a short statement of max. 500 characters*
10. Did you get any feedback from the public/ stakeholders on the measures? (y/n)
If yes: *please elaborate in a short statement of max. 500 characters.*

Final

11. Do you have any information you want to add? *(Please describe this in a short statement of max. 500 characters.)*
12. Would you or a colleague (e.g. contact person from question 5) be willing to participate in oral interviews in the next research phase? (y/n)
If yes, please provide your contact details or those of the person you suggest (e.g. name, e-mail address and telephone number)

Written inquiry (Non-Parties)

General

1. Have you established activities regarding small-scale systems? (y/n)

If yes: 1.1. Are these activities run under an overarching strategy? (y/n)

If yes: 1.2 Do the activities focus either on sanitation or on drinking-water only? (*sanitation; drinking-water; no focus*)

If *sanitation; drinking-water*: 1.2.1 Why was this focus chosen? (*Please elaborate in a short statement of max. 500 characters.*)

If yes: 1.3 Do the activities focus on small public systems, onsite systems or both? (*multiple choice: 1. small public systems; 2. onsite systems; 3. both; 4. none*)

If *small public systems/onsite systems*: Why was this focus chosen? (*Please elaborate in a short statement of max. 500 characters.*)

If no: *You successfully completed the inquiry. You can add additional comments in the last section.*

Activities

2. What is the overarching goal for the activities? (*Please elaborate in a short statement of max. 500 characters.*)

3. Did you establish any measures to implement these activities? (y/n)

If yes: 3.1 Can you categorize these measures?

(*drop-down menu; multiple answers possible*):

- *Implement infrastructure measures to improve access to safe systems*
- *Improve evidence base*
- *Increase awareness/capacity of operators*
- *Improve data management infrastructure*
- *Improve the financial situation of small-scale systems*
- *Implement legal/regulatory changes*
- *Improve management and safety of services*
- *Improve monitoring and surveillance*
- *Introduce strategic planning to enable sustainable operation*
- *Support institutional collaboration and cooperative arrangements*

4. If the implementation of measures has not started yet, what were the main reasons for this fact? (*multiple choice: time constraints, limited financial/other resources, organizational reasons, political reasons, other (please specify)*)

(*If the implementation of measures has not started yet, you successfully completed the inquiry. You can add additional comments in the last section. Thank you very much for contributing your time and knowledge. We will contact you in the further process of data gathering.*)

(*If the implementation of measures is ongoing or completed, please complete the following 2 sections.*)

Measures

5. Can you name the person(s)/ institution(s) mainly responsible for the implementation of measures? *(If possible, please enter name(s) and contact details.)*
6. Was a budget for the implementation of measures assigned? (y/n)
If yes: *(please elaborate in a short statement of max. 500 characters.)*
7. Did you perform a kind of cost-benefit analysis of activity(ies)? (y/n)
If yes *(please elaborate in a short statement of max. 500 characters.)*

(If the implementation of measures is still ongoing, you successfully completed the inquiry. You can add additional comments in the last section. Thank you very much for contributing your time and knowledge. We will contact you in the further process of data gathering.)

(For measures that have been completed, please go to the following section.)

Effectiveness

8. How would you assess the impact of the measures? *(multiple choice: highly effective, effective, not highly effective, no impact at all)*
9. Did you assess/verify the effectiveness of the measures? (y/n)
10. Did you get any feedback from the public/ stakeholders on the measures? (y/n)

Final

11. Do you have any information you want to add? *(Please describe this in a short statement of max. 500 characters.)*
12. Would you or a colleague (e.g. contact person from question 5) be willing to participate in oral interviews in the next research phase?
If yes, please provide your contact details or those of the person you suggest (e.g. name, e-mail address and telephone number)

Confirmation

Dear participant,

You successfully finished the online inquiry by the German Environment Agency regarding small-scale water supply and sanitation systems.

Thanks a lot for investing your time and knowledge to answer this inquiry and for supporting our research. We will share the results with you as soon as we finish the evaluation of data.

We may contact you regarding possible follow-up expert interviews. In these interviews, we would like to gain further insights into your activities in the field of small-scale systems and to get a picture of best practice examples.