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Water, sanitation and hygiene in schools

INFORMAL DOCUMENT

**Landscape report on situation of water, sanitation and hygiene in schools in the
WHO European Region**

– Final draft for endorsement by the Working Group on Water and Health –

To support the implementation of the 2014-2016 programme of work of the Protocol on Water and Health, the WHO Regional Office for Europe organized a regional Member State meeting on advancing water, sanitation and hygiene (WASH) in schools (Bonn, 18-19 September 2014).

The preliminary results of a literature review on WASH in schools in WHO European Region, undertaken by the WHO Collaborating Centre for Health Promoting, Water Management and Risk Communication at the University of Bonn, were presented at this meeting. It was recommended to expand the scope of this work and prepare a “landscape report” summarizing the evidence on the situation of WASH in schools for the Region through a systematic literature review, appraisal of available information from national and international surveys as well as identification of best practice case studies in school regulation, surveillance and management.

The scope, structure and preliminary results of the landscape report were presented at the seventh meeting of the Working Group on Water and Health (26-27 November 2014), as well as the first Expert Group Meeting on WASH in Schools (Budapest, 16-17 April 2015). The report was further updated reflecting the comments and feedback received from the second Expert Group Meeting (Bonn, 8-9 October 2015), the eighth meeting of the Working Group on Water and Health (Geneva, 21-22 October 2015) and informal planning meeting on WASH in schools (Bonn, 9 February 2016).

The Working Group on Water and Health is requested to review the final draft and endorse a submission of the document to the fourth session of the Meeting of the Parties for adoption.

The draft document is for use by the Working Group on Water and Health only and not for wider distribution.

Landscape Report on the Situation of Wash in Schools in the European Region
WHO Regional Office Europe, 2016

Policies on WASH in schools in the WHO European Region; National Surveys on WASH in schools; Literature Review; Conclusions and Recommendation

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List of Acronyms and Abbreviation

EECCA	Eastern Europe, Caucasus and Central Asia
ENHIS	Environment and Health Information System
FTP	Federal Targeted Programmes
GLAAS	Global Analysis and Assessment of Sanitation and Drinking-Water
HWF	Hand Washing Facility
MHM	Menstrual Hygiene Management
NGO	Non-Governmental Organization
RPG	Regional Priority Goal
UNECE	United Nations Economic Commission for Europe
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization

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The named authors alone are responsible for the views expressed and this publication does not provide any opinion whatsoever on the part of the World Health Organization. The World Health Organization does not warrant that the information contained in this publication is complete and correct.

Executive Summary

Scope and Objective

The Landscape Report on the status of water, sanitation and hygiene (WASH) in schools in the WHO European Region provides a comprehensive insight of the progress made and the current situation and challenges concerning WASH in schools. The Report was commissioned by the World Health Organisation (WHO) and it is directed to all the countries committed for progressive implementation of the Protocol on Water and Health, the Parma Declaration, in particular the regional priority goal related to water and sanitation and the 2030 sustainable development agenda. The report serves as a sound evidence basis for informed policy action on WASH in schools for the countries in the WHO European Region.

Methods

Available evidence on the condition of WASH in schools was retrieved from scientific literature and national surveys. Relevant information on WASH in schools policies and their implementation, in addition to national coverage, were collected from desk review of case studies and international surveys such as the 2015 WHO Report on School Environment, the 2012 and 2014 UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) and 2015 UNICEF report.

Main Findings

Maintaining and improving WASH conditions in schools is important in terms of education and children's health but also provides economic and environmental benefits. The main issues that emerged from the analysis of available evidence for the WHO European Region are summarized below.

A. **Water, sanitation and hygiene conditions in schools**

WASH related issues and challenges are affecting pupils' health, wellbeing and dignity at school

WASH in schools presents many challenges, regardless of existence of regulations and the economic status of the country. The most reported issues are related to improper planning, lack of consumables, poor cleaning and maintenance and inadequate operation of water supply, sanitation and hygiene services, followed by physical infrastructure problems. Pupils' perception surveys revealed a general dissatisfaction due to insufficient cleaning and maintenance, which is not always acknowledged by school management and staff, promoting antisocial behaviours, vandalism and hindering healthy behaviours.

- **The access to water for drinking and for hand washing in schools is not often ensured**
Water may be absent, intermittent, unsafe, and/or hard to access, far or not allowed in class. Insufficient or inadequate hand washing facilities and too cold temperature also hinder hand washing practice.
- **Hygiene management is not adequate to pupils' needs**

Toilets are dirty, overcrowded and smelly; soap, toilet paper, drying devices, and disposable bins are not sufficient. As a consequence toilet avoidance is common among pupils and lacking or inadequate hygiene education does not promote practicing healthy behaviours.

- **Everywhere in the region, sanitation is not always adequately provided nor maintained**

Sanitation might still be absent or it is inadequate to pupils' numbers and needs. Use of sanitation facilities is hindered by insufficient maintenance and cleanliness, poor building materials, lack of privacy, cold temperatures, and poor illumination.

- **Disparities and inequalities permeate WASH accessibility**

Vulnerable pupils, like disabled children, girls and minorities in the rural areas or specific regions, cannot equally access WASH facilities in schools and are neglected by policies and funding programs.

B. Policy and regulations on WASH in schools

Policies and targets are set, confirming the countries' commitment, but hindering factors have impeded full implementation and actual improvement of WASH in schools

Policies and/or guidelines on WASH in schools are mostly in place, coordination mechanisms are set and targets or targeted programs for improving WASH in schools have been approved in many countries. However, policies and plans are often not fully implemented and financed, do not always cover the whole country and do not equally consider all WASH aspects, with hygiene being less prioritized compared to water and sanitation.

The legal framework is complex and accountability is not well coordinated

The leadership of the educational sector is low, as WASH in schools is not yet considered an education intervention. The legal framework is complex and spreads the responsibilities among numerous institutions without a clear leading actor, eventually affecting the coordination mechanisms and compliance.

Standards are not comprehensive and often neglect critical WASH aspects

Standards and regulations are commonly in place, but essential requirements for ensuring adequate WASH in schools are heterogeneously chosen and differently regulated (Figure 1). The pupils-toilet ratio is not always in line with international standards (WHO, 2009).

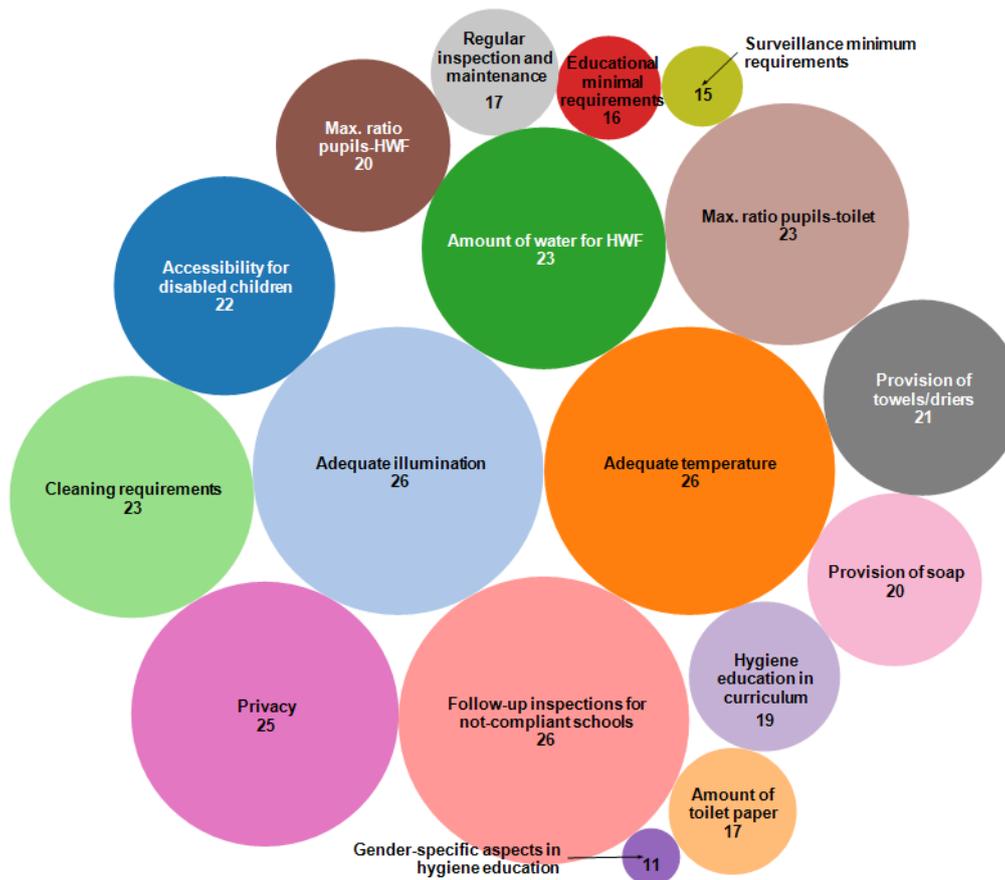


Figure 1: Requirements for WASH in schools specified by the standards in place in the WHO European Region, by number of countries (Source: WHO, 2015)

Policy-making won't be successful unless critical gaps in the surveillance are addressed

Monitoring data retrieved from many countries indicate that the surveillance system and specific surveillance requirements are often in place. However, actual monitoring is not regular and of limited coverage, the indicators are inadequate and/or heterogeneous, and the monitoring is not seen as a tool for policy implementation. The progress in legislation has thus not always been translated into action and plans cannot improve those conditions unless it is known what problems and gaps are hindering the application of the standards. Communication and coordination systems between involved institutions are not efficient.

School involvement is a key-factor for efficient improvement of WASH in schools

Active participation of schools and pupils foster improvement and promote awareness, cleanliness and maintenance. Interventions helped promoting pupils' behaviours and disease prevention, and improved the WASH conditions in schools.

C. Scientific evidence on WASH in schools and health in the Region

Policy-making need to be supported by scientific research, especially on neglected topics

The scientific research and monitoring data in the WHO European Region are limited, especially with respect to low- and upper-middle income countries. Important WASH-related topics, like

menstrual hygiene management (MHM), hygiene education and WASH related health assessments, still lack prioritization. As a consequence, very limited data are available on the association between WASH in schools and related health problems, effectiveness of hygiene interventions to support informed policy action.

Inadequate WASH impacts health and cognitive performance of children

The limited number of studies undertaken in the WHO European Region indicates a clear association between children's health and WASH conditions in schools. A significant number of pupils avoid using WASH facilities with consequences on health and cognitive performances. Children in schools are in fact dehydrated, report urinary infections and constipation and in some countries a high rate of parasitic infection was observed in relation to inadequate WASH in schools. The evidence show that toilet avoidance is not only fostered by insufficient and inadequate facilities, but also by lack of teachers' and children's awareness concerning the importance of WASH and the consequent school policies for drinking and toilet visits. Available studies also reported a beneficial effect of hygiene interventions, with a significant reduction of absenteeism due to infections during and/or after the intervention.

1. Introduction

The access to water, sanitation and hygiene (WASH) is essential for healthy development and growth of children all around the world. Adequate access to WASH is a children's right, stated in the UN Convention on the Rights of the Child (20th November 1989).

In this context, at the Fifth Ministerial Conference on Environment and Health (Parma, 2010) the Parma Declaration on Environment and Health was adopted. The document addresses all health risks to children and other vulnerable groups posed by poor environmental, working and living conditions, especially focusing on the risk posed by the lack of water and sanitation. By signing the Parma Declaration Member States of the WHO European Region entered into a Commitment to Act on the Regional Priority Goal 1 (RPG1) which '*strive[s] to provide each child with access to safe water and sanitation in homes, child care centres, kindergartens, schools, health care institutions and public recreational water settings by 2020, and to revitalize hygiene practices*' (WHO, 2010).

The Protocol on Water and Health, adopted at the Third Ministerial Conference on Environment and Health (London, 1999), is the key regional policy instrument in supporting implementation of RPG 1 at the national level. The Protocol's objective is to prevent, control and reduce water-related disease through sustainable water management. At the third session of the Meeting of the Parties of the Protocol (Oslo, 2013), the 2014-2016 programme of work was adopted and for the first time it includes a priority area concerned with improving and strengthening WASH in schools. Thanks to the work done in the WHO European Environment and Health Process, especially under the Protocol, WASH in schools is now on the political agenda of most countries in the WHO European Region.

To support the implementation of the Protocol 2014-2016 programme of work, the WHO Regional Office for Europe organized the Meeting *on advancing WASH in schools* (Bonn, September 2014). The meeting was attended by 50 participants from health and educational departments of 24 Member States, as well as from leading academia, development/support organizations, non-governmental organizations and the United Nations Children's Fund (UNICEF). The meeting recommended, inter alia, preparing a "landscape report" summarizing the evidence on WASH in schools for the WHO European Region through a literature review, appraisal of available survey information on WASH in schools and identification of best practice, case studies in school regulation, surveillance and management. The aim of this report is thus to provide a useful insight into the current state of WASH in schools in the countries within the WHO European region, providing:

- The progress made and the current challenges concerning policies and national regulations;
- A collection of data about access and functionality of water, sanitation and hygiene in the school setting, collected from both scientific literature and national surveys;
- The issues and challenges concerning WASH in Schools and its effect on health and school environment, identified by conducting a literature review;

This review will support the Member States' and WHO's efforts in advancing the agenda on WASH in schools in the WHO European Region, including other stakeholders committed to and working on improving WASH in schools as a fundamental objective to protect children's health and to ensure basic human rights. This report is directed to all the countries committed for progressive implementation of the Protocol on Water and Health, Parma declaration, in particular the regional priority goal related to water and sanitation and the 2030 sustainable development agenda, as a tool to get inspiration from, as a memorandum on the path taken and on the reasons to keep going towards ensuring WASH to all children.

2. Methods

This Landscape report consists of a systematic review of the data concerning WASH in schools (and other childcare settings) in the WHO European Region. The efforts done to collect and summarize the data from various sources aimed to provide the involved parties and different stakeholders with a tool useful for the discussion and the development of efficient and focused strategies towards universal access to WASH in schools.

With this in mind a general overview on the current situation of WASH in schools and the political commitment in the WHO European Region was developed (Chapter 3) by summarizing the results reported by international surveys:

- The Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS): analyses the state of the enabling environment including governance, monitoring, human resources and financing directed to WASH sector and the factors influencing progress on the delivery of services. For this report only the information related to the countries of the WHO European Region was considered. WASH in schools related data published in the 2014 GLAAS biennial reports and responses submitted by the 12 participating countries of the Region (WHO, 2014a, 2014b and 2014c) were used.
- The Environment and Health Information System (ENHIS)¹: evidence-based information system, interactive database composed of country-level indicators and regional assessments (fact sheets). WHO Regional Office for Europe conducted the Environment and Health Policy Questionnaire survey, assessing the national and sub-national progress in the implementation of commitments made in the Parma Declaration and the Regional Priority Goals (RPGs) and published the Report on School Environment (WHO, 2015). The data used were retrieved from this report.
- The UNICEF 2015 survey Advancing WASH In Schools Monitoring: national estimates for WASH in primary schools published in the survey report were retrieved.

Targets set under the Protocol for Water and Health were retrieved from the national target documents adopted by the countries² and the summary reports submitted by Parties for the third session of the Meeting of the Parties, as received by the Secretariat of the United Nations; complementary targeted programs were retrieved from the information provided at the WHO *Meeting on advancing water, sanitation and hygiene* (Bonn, September 2014).

Since this landscape report aims to be a tool especially to support informed policy-making and target-setting and –development a further analysis was conducted concerning the standards in place among the countries of the WHO European Region (chapter 3). For this, countries with different socio-economic backgrounds³ were considered. The information related to country's policies and standards refers to current regulations and guidelines mostly considering sanitation in

¹Further information on ENHIS: <http://www.euro.who.int/en/data-and-evidence/environment-and-health-information-system-enhis>

² Further information on the targets set by parties under the Protocol on Water and Health: http://www.unece.org/env/water/pwh_targets_set.html

³The socio-economic state of the different countries was set according to the World Bank GDP ranking. For further information: <http://data.worldbank.org/data-catalog/GDP-ranking-table>

schools. The information for England and Wales, Germany and Italy was retrieved from online governmental databases and dedicated journals. Further information was reported by single country representatives or was retrieved from dedicated surveys (UNICEF, 2010; UNICEF Georgia, 2012; ONS, 2013).

An extended analysis of existing national surveys undertaken by state institutions, NGOs, or international agencies (UNICEF, WHO) was conducted, to provide a more in-depth prospect of the conditions of WASH in schools within the different countries of the WHO European Region (chapter 4). Most of materials were of public domain (see Bibliography) and were either available directly in English or have been translated from French, German, Italian and Russian. The landscape report does not encompass all the countries of the WHO European Region as documents published in any other language than the ones mentioned are excluded.

Additionally, an internet research using the search engines “Google” and “Bing” was conducted to compile information on national policies, and case studies in school regulation, surveillance and management specifically for each country of the WHO European Region. Complementary information provided at the WHO *Meeting on advancing water, sanitation and hygiene* (Bonn, September 2014) and WHO *1st Expert group meeting on WaSH in schools* (Budapest, April 2015) was taken into account to provide a more comprehensive scene of the current state of WASH in schools, including countries whose information was not otherwise available.

Finally, a literature research was conducted (chapter 5), screening peer-reviewed literature available in the public domain and retrievable from the scientific databases PubMed and Science Direct. The review aimed at assessing the state of WASH in schools in the WHO European Region: which inadequacies are present in the countries of the Region and what are the observed effects of impaired or improved access to WASH on pupils’ health. Peer-reviewed articles addressing relevant topics to WASH in schools were selected, namely those related to hand washing, sanitation and toilet facilities, hygiene education, drinking-water provision, menstrual hygiene and health assessments. Studies without a school-based component were excluded. Publications that referred to schools, nurseries, day care facility or kindergartens were considered. Only articles published between 2000 and 2014 in English or German were included in the review. The primary research was based on general search terms (e.g. water, school) which were combined in such a way, that all the potential associated terms (e.g. water well, water waste, etc.) and health outcomes were covered and a maximum of the papers available on WASH in schools retrieved (Table 1). This research identified 25,505 publications, whose title or keywords incorporated a single or a combination of search terms (Table 1). Due to the large amount of results, a secondary screening was conducted, where all article abstracts were screened for the same search terms (Table 1). Global reviews were not further considered but screened for relevant literature. During a tertiary screening, the articles were finally hand-searched for relevant contents and country. By this, articles not related to WASH in schools, like aspects of food hygiene, studies located outside the WHO European Region and duplicates were excluded. For articles with identical data sets, only one was kept. At the end 35 studies fully met the inclusion criteria (Figure 2).



Figure 2: Flow chart of the selection process undertaken in the literature review (chapter 6)

The scientific databases used for the literature search cover 5,605 (PubMed) and 3,608 (Science Direct) journals in different languages and at least an English title, keywords and abstract are provided. Articles, which are only available in a language other than English and German and not referenced by the two large literature search database, were thus not included. It is acknowledged that this can be a marginal share of relevant scientific literature, especially because WASH in school might be still considered more a mere national issue, despite the international agreements. However, it is assumed that a substantial part of the scientific research of high quality will be published in international journals to increase scientific visibility and recognition. In addition, experts and country representatives were asked to provide possible missing literature from national sources. Seven additional articles were added after the initial review, 5 from a research on peer-reviewed articles in Russian.

Table 1: Search terms and number of results of the literature research

Search terms	PubMed	ScienceDirect
	Title/Abstract	Title/Abstract/Keywords
schools AND water OR sanitation	8,014	827
school* AND hygiene	419	599
school health policies AND water OR sanitation	7,197	21
school health policies AND hygiene	0	15
school* AND toilet*	757	59
school absenteeism AND water OR sanitation	6,771	2
school toilets	19	47
handwash* AND school*	0	19
hand washing AND school*	0	23
hand washing AND school	379	23
hand washing AND school*	296	18
Total search results = 25,505	23,852	1,653

*including additional long-tail keywords that came up during the research and considered as relevant

3. Policies on WASH in schools in the WHO European Region

This chapter outlines the current situation concerning policies, plans and targets for WASH in schools adopted in the countries of the WHO European Region. Findings of relevant international surveys are summarized, providing information on the state of policy plans and their implementation, national coverage's, and specific targets. These include the UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS), Environment and Health Policy Questionnaire conducted by the WHO Regional Office for Europe in 2014 and UNICEF 2015 survey Advancing WASH in Schools Monitoring.

Many of the plans addressing WASH in schools reported in GLAAS were developed under the Protocol of Water and Health, an important regional policy tool. The targets set under the Protocol were thus also analyzed, to provide a closer insight in the areas and the details chosen in different countries of the region.

Finally, examples of national policies and standards were examined from some countries, based on the availability of materials in English and provision of the country data: England and Wales, France, Georgia, Germany, Hungary, Italy and Russian Federation. The information consists of various regulations adopted by countries in the WHO European region to ensure WASH access in schools; possible actors involved in improving WASH for pupils; and various mechanisms for coordination and/or surveillance currently in place. The reported national legislations were retrieved via a desk review or provided by national representatives at different WHO meetings (Bonn, September 2014; Budapest, April, 2015).

3.1 The political framework

National regulations and standards on WASH in schools

WASH in schools is differently regulated and requirements are developed by different agencies depending on the country context and processes, although targets often aim at similar outcomes. According to the information obtained from various sources in this review, 38 countries were found to have policies for WASH in schools and preschools and the majority have legally binding policies and some have non-legally-binding guidelines that replace or extend the requirements included in the policies. Looking in detail at the WASH in schools policies in the countries for which the desk review was conducted (Table 2), Georgia was the only country found with a unique national regulation in place comprehensively addressing all WASH related aspects, including education and monitoring. Here, two separated standards for schools and pre-schools were approved by the Ministry of Education and Science of Georgia and by the Educational and Scientific Infrastructure Development Agency of Georgia, respectively. General regulation for hygiene and health at schools are also included in a law approved by Ministry of Labour, Health and Social Affairs. For other countries different regulations and manuals focus either on the improvement of

sanitation facilities, or on other aspects like the provision of drinking-water, the air quality, the health surveillance, or the hygiene promotion. Often the legal framework is relatively complex, it is not always specifically addressed to schools - like in France and Italy where the Labour code is applied to schools - and the link between the related regulations is not explicit. In Germany and in England an advisory document was produced (DFE, 2013; Lein, 2013), which provides references to the available regulations and help recipients to understand all their obligations concerning WASH and other issues in schools. In Italy a similar document was produced specifically for kindergartens (ISPESL, 2005).

Table 2: Examples of national regulations analysed by desk review*

	England	Wales	France	Georgia	Germany	Hungary	Italy	Russian Federation
Regulation:								
- Legally binding	Partly ¹	Yes	Partly ¹	Yes	Partly ¹	Yes	Yes	Yes
- Approved by: Government/Ministry/Department of	Education	Education	Labour; Education	Labour and Health; Education	Construction; Federal Government; Environment	Environment; National Government	Labour; National Government; Education	Consumer Rights Protection and human well-being; Justice; Federation Council

*Full references are listed in the Bibliography by country

WASH in schools comprises several aspects of the school environment eventually affecting children’s health and performances. As described, different actors are involved in the development and implementation of programs and regulations for improving WASH services in schools. The division of roles and responsibility is spread over different institutions and the leading body, taking the overall responsibility, remains often unclear (Box 1). To avoid policy gaps and efficiently ensure equal access to WASH for all children, a coordination system between those actors should be in place. According to the information provided at the WHO Bonn Meeting, many countries in the WHO European Region established a coordination body to work on issues related to WASH in schools (Box 1). Some countries reported to have legislations that regulate such coordination; others reported that national health institutes take the responsibility of coordination, especially if surveillance is concerned. Several countries reported that the implementation of the Protocol on Water and Health and participating in GLAAS have promoted the establishment of coordination mechanism (Box 1).

Box 1: WASH in schools responsibility-coordination

National coordinating mechanism for WASH in schools: findings from the *Meeting on Advancing Water, Sanitation and Hygiene in Schools* (Bonn, September 2014)

According to the information collected through country briefs (Annex 2), 15 out of 20 responding countries reported to have formal mechanism to coordinate the efforts undertaken for WASH in schools by different authorities (Table 3). In 9 of the responding countries reported laws formally regulate the coordination between the different institutions. 8 countries reported the presence of a national coordination body or working group within the government. Of these, three countries have a specific body coordinating institutional activities related to WASH in schools, especially concerning the surveillance: in Albania the Central Inspectorate coordinates and harmonizes the surveillance across the country; in Estonia the national Health Board supervises WASH in schools in the country; in TFYR Macedonia the National Institute of Public Health has the responsibility for general coordination of the institutions involved in WASH in schools, while the State Sanitary and Health Inspectorate (SSHI) is responsible for the coordination of surveillance activities together with the Ministry of Education and Science. The Republic of Moldova has a national authority for the supervision and coordination of WASH in the whole country: the National Extraordinary Commission for Public Health. The Ministry of Health of the Ukraine, reported the presence of an inter-agency working group coordinating the work for the implementation of the Protocol on Water and Health.

Of the 20 countries taking part in the meeting, several countries (8) stated that the coordination aimed at unifying the work on WASH from different authorities and/or the production of surveys was developed with the support of international programs and initiatives. The Ministries of Health from Lithuania, the Republic of Moldova and Ukraine reported that meetings of the cabinet ministries provide a good mechanism for collaboration between ministries promotes the implementation of the Protocol on Water and Health. The Ministry of Health of Serbia reported that the coordination doesn't take place on regular basis, but was triggered ad-hoc through participation in the 2014 GLAAS reporting cycle.

Table 3: Formal mechanisms to coordinate WASH efforts between the involved institutions*

Countries reporting that coordination is regulated by law:	n=9	Albania, Bosnia and Herzegovina, Czech Republic, Kyrgyzstan, Latvia, Lithuania, Russian Federation, TFYR Macedonia, Turkmenistan
Countries reporting a formal inter-ministerial coordination:	n=7	Azerbaijan, Kyrgyzstan, Latvia, Lithuania, Republic of Moldova, Ukraine
Countries reporting a formal coordination by a national health institution:	n=3	Albania, Estonia, TFYR Macedonia
Countries reporting no coordination mechanism:	n=5	Armenia, Croatia, Georgia, Hungary, Montenegro

* Information collected during the meeting on advancing water, sanitation and hygiene in schools held in Bonn 18-19 September 2014

¹ in Republic of Moldova the coordination takes place within the National Extraordinary Commission for Public Health

Concerning requirements for WASH facilities arrangement and organization, the reported examples of national policies (Table 5) are in line with the results of the 2014 WHO Environment and Health Policy Questionnaire (Table 4): standards for sanitation and hygiene facilities in schools are commonly in place in the WHO European Region. Nevertheless, different countries consider different parameters as essential (Table 5 gives an overview on the regulations evaluated from a sample of 7 countries).

Table 4: Summary of results of the WHO policy questionnaire on WASH in schools - WASH in school requirements stratified by Gross National Income (GNI) per capita (WHO, 2015)

	Policy GNI per capita based grouping of Member States			
	High	Upper middle	Low and Lower-middle	All
Number of countries set minimum parameters	21/21 (100%)	8/8 (100%)	5/5 (100%)	34/34 (100%)

Maximum number of pupils per toilet place	15/21 (71%)	5/8 (63%)	3/5 (60%)	23/34 (68%)
Maximum number of pupils per hand wash basin	9/21 (43%)	6/8 (75%)	5/5 (100%)	20/34 (59%)
Adequate light in toilets and washrooms	16/21 (76%)	6/8 (75%)	4/5 (80%)	26/34 (76%)
Comfortable temperature in toilets and washrooms	15/21 (71%)	6/8 (75%)	5/5 (100%)	26/34 (76%)
Privacy standards for toilet cabins	17/21 (81%)	4/8 (50%)	4/5 (80%)	25/34 (74%)
Accessibility for children with disabilities	16/21 (76%)	5/8 (63%)	1/5 (20%)	22/34 (65%)

Table 5: Examples of parameters for WASH in schools included in the analyzed national regulations*

	England	Wales	France	Georgia	Germany	Hungary	Italy	Russian Federation
Water Consumption	•	•	•	✓	•	✓	•	✓
Privacy (toilets separated per gender and/or wall height)	✓	✓	•	✓	✓	✓	✓	✓
Proportion pupils-toilet	✓ ²	✓ ³	✓	✓	✓	✓	✓ ³	✓
HWF close to the toilet	✓	✓	✓	✓	✓	✓	•	–
Proportion pupils-HWF	✓ ²	✓ ²	✓	✓	✓	✓	•	✓
Proper ventilation and illumination	✓	✓	✓	✓	✓	✓	✓	–
Consumables provision (soap and/or drying tools)	•	✓ ²	✓	✓	✓	✓	•	✓
Provision of hot water	✓	✓ ²	•	✓	•	✓	•	✓
Characteristic of building materials	•	✓ ²	✓	✓	✓	•	•	✓
Maintenance and/or cleaning	•	✓ ²	✓	✓	✓	✓	• ²	✓
Accessibility (one facility per floor)	•	•	•	✓	✓	✓	• ⁴	✓
Access for disabled people	✓ ²	✓ ²	✓	✓	✓	✓	✓	–
Alternatives for areas with no centralized systems	•	•	•	✓	•	•	•	✓

*Full references are listed in the Bibliography by country

• Not specified in the analyzed regulation

✓ specified in the analyzed regulation

– Information not retrieved

¹ Some standards are legally binding; some are specified in non-statutory guidance

² The parameter is regulated in non-statutory guidance, in Italy regional regulations are in place

³ Not in accordance with the WHO guidelines, in Wales the proportion is given as a percentage and therefore the non-compliance occur only in case of schools with >500 students

⁴ Regulated only concerning the washrooms for disabled people

The majority of the countries (≥25) address key factors such as privacy, adequate illumination and temperature (WHO, 2015). More than 20 countries also specify maximal number of pupils per toilet (retrieved examples are presented in table 6) and minimum requirements for cleanliness of

the facilities. However, not all standards in place are in accordance with the WHO recommendation (2009), especially with respect to number of pupils per toilet. In many countries the standards are missing requirements for adequate number of HWFs (missing in 14) and provision of hygiene consumables, like soap (in 14) drying tools (in 13) and toilet paper (in 17). References for regular inspection and maintenance requirements are also not specified in the policies of 17 countries (WHO, 2015). The limitations of the current regulations might promote overcrowding of the WASH facilities and severely affect the hygienic conditions in the schools. Another important factor that is not taken into account by the regulations of several countries (12 of the WHO EH Policy Questionnaire respondent countries) is equality, because the standards do not ensure accessibility to sanitation facilities for disabled children (WHO, 2015). Information related to parameter and standards for ensuring adequate menstrual hygiene management (MHM) were not retrieved.

Table 6: Examples of fittings-pupils ratios specified in the national regulations retrieved by desk review*

	Proportion toilets-pupils		Proportion	Proportion HWF-
	Boys	Girls	urinals-pupils	Pupils
England	1:20	1:20	-	1:20 ¹
Wales	1:20	1:20	-	- ²
France	1:20	1:10	1:20	1:3
Georgia	1:30	1:25	In secondary schools 1:80	1:30
Germany	1:50 ⁴	1:25 ⁴	1:25 ⁴	1:60 ⁴
Hungary	1:40	1:10	1:20	-
Italy	1 per class		1 per class	-

*Full references are listed in the Bibliography by country

- Information not retrieved

¹ The number of washbasins can be reduced for pupils older than 11 years old

² For pupils younger than 11, washbasins should be in ratio 1:1 with the sanitary fittings; for older pupils washbasins should be in ratio 2:3 with the sanitary fittings

³ Ratios for facilities used during the breaks; during the lessons 1 of each fitting per gender should be available on each floor

Water, sanitation and hygiene are recognized children's rights. It is thus important to recognize that hygiene education is essential for empowering children's with progressive acquisition of knowledge and awareness on their rights, providing skills for adopting responsible hygiene behaviour for themselves and their school. Hygiene education is included in the policies of more than half of the countries in the WHO European Region, but only 19 countries reported in the WHO EH Policy Questionnaire to have hygiene education integrated into the school curriculum. Of these countries, not all regulate minimum educational requirements and only 11 include gender-specific aspects, like MHM, in the hygiene education. Examples of policies for hygiene education are reported in Box 2. The considered countries regulate the topics of hygiene specifically related to WASH for primary schools only, at exception of TFYR Macedonia.

Box 2: National school curricula and WASH in schools

Some countries have introduced WASH in the school curricula at the national level. The examples here reported show how WASH is implemented in school education program in different countries within the WHO European Region. These examples are not meant to represent exhaustively in number and practice all the curricula approved in the WHO European Region.

In France health and hygiene education are part of the school curricula as stated in the two circulars on school sanitation, published in the Official Bulletin of National Education by Ministry of Education (France, 1998; France, 2011). The circulars contain practical advice for providing pupils with hygiene education, for example ‘accompany younger students in acquiring proper hand washing methods’, or ‘implementation of screening and education activities in oral health among primary school pupils and college’.

In Georgia the new standards for WASH in schools developed by the Ministry of Education and Science and the Educational and Scientific Infrastructure Development Agency in collaboration with UNICEF (Georgia, 2013), include a section on health education. To support the standards concerning hygiene education, the manual “Be Clean and Healthy” was produced, targeting teachers and pupils of elementary schools (Georgia, 2013b).

In Italy, the National Guidelines for Personalized Study Plans in Primary School approved by DL no. 59 (19/02/04) regulate that primary schools should provide health education, which also includes topics like personal hygiene and disease prevention. Further specifications on WASH are not present, except for oral hygiene.

In TFYR Macedonia education on WASH in schools is addressed by the Law 44/1995 Policy on Hygiene education in schools, implemented with the secondary school educational programs, which regulates the performance of hygiene education in all primary and secondary schools, through the implementation of specific curricula (e.g. “Life Skills”). Primary school also implemented specific educational programs, the “Green package” and “Green package junior” prepared by the Regional Environmental Centre (REC) in collaboration with the Ministry of Education and Science in 2011. The program packages focus on hygiene topics like risks associated with consumption of unsafe drinking water and food, and improper disposal of wastewater

Current programs and activities on WASH in schools

From the review of the available data (GLAAS, Policy Questionnaire, etc.), at least 19 countries (36%) reported to have set specific targets and/or developed targeted programmes for improving WASH in schools at the national or regional level⁴. The information is supported by the data gathered from 20 countries at the meeting on advancing water, sanitation and hygiene in schools (Bonn, 18-19 September 2014) which indicates that many countries have in place programmes or implement targeted activities addressing the WASH in schools (Box 3). The information can be summarized:

- Dedicated policy on school health services in Albania
- WASH in school assessments in Armenia and Serbia

⁴The countries reporting to have set a specific target or a targeted programme for WASH in schools are: Albania, Armenia, Azerbaijan, Belarus, Croatia, Georgia, Germany, Italy, Kazakhstan, Kyrgyzstan, Lithuania, Republic of Moldova, Russian Federation, Serbia, Tajikistan, TFYR Macedonia, and Ukraine.

- National standards for educational facilities in Croatia and surveillance of WASH in schools in the Former Yugoslav Republic of Macedonia
- Improving water supply and sanitation systems and hygiene education in Georgia, Kyrgyzstan, Republic of Moldova, Russian Federation, Serbia, Turkmenistan and Ukraine.

Several countries (Estonia, Hungary, Latvia and Montenegro) reported to have no national target or targeted program for WASH in schools at present or no information was provided (Bosnia and Herzegovina and Czech Republic).

Box 3: Additional examples for programmes and/or activities addressing the Water, Sanitation and Hygiene in schools in countries of the WHO European Region*

Albania	<u>National level:</u> The Policy of School Health Services; Order of the Minister No. 300 (2012) Scope: to promote health in schools.
Armenia	<u>National level:</u> WASH-related targeted activity developed by the National Centre for Disease Control and Prevention, under approval; Scope: to investigate current WASH situation in schools.
Croatia	<u>National level:</u> The National Educational Standards for Elementary Schools and the National Educational Standards for Pre-schools, Decree No. 63/08 and No. 90/10.
Lithuania	<u>National level:</u> Programme of Educational Institutions Modernization for 2013-2016, Order No. V-410 (2013) of Minister of Education and Science; Scope: to enable the modernization of at least 120 buildings (38,900 school children) of educational establishment, including water and sewage systems renovation.
Russian Federation	<u>National level:</u> several federal targeted programmes (FTP); e.g. FTP "Clean Water" 2011-2017; FTP "Social Development of Rural Areas for the period up to 2013"; FTP "Sustainable Development of Rural Areas for the period 2014-2017 and up to 2020". Scope: inter alia the programs include activities to improve the water and sanitation infrastructure in schools. <u>Regional level:</u> -Regional targeted programmes (RTP), implemented within the framework of the FTP in nearly all the sub-national entities of the Russian Federation. - A number of executive decisions implemented in recent years - e.g. Decrees on the implementation of the RTP "Developing the network of pre-school children's education establishments in the Sverdlovsk oblast for the period 2010-2014" and RTP "Developing education in the Sverdlovsk oblast" ("Our new school") for the period 2011-2015; "Construction of warm sanitation facilities in educational establishments of the Oryol oblast for the period 2012-2014"; Scope: to improve the conditions for the upbringing and education of children and to prevent illness among secondary school students.

Serbia	<p><u>National level:</u></p> <ul style="list-style-type: none"> - National Project <i>Delivery of Improved Local Services</i> led by the education sector in 2013 Scope: to replace WASH facilities in schools. 161 inquiries (out of 692 submitted) from primary and secondary schools were approved; in 40 schools in five municipalities all WASH facilities were replaced and 8 septic tanks were remediated - National program adopted by the Serbian Government: <i>Regulation on Determining National Programme of Renewal of Public Facilities within Education Sector</i> Scope: rehabilitation and reconstruction of facilities in pre-schools, primary and secondary schools affected during the heavy floods in May 2014 <p><u>Regional level:</u></p> <ul style="list-style-type: none"> -Regional pilot project led by the health sector (2013-2014): <i>Exposure assessment survey in schools using the standardized WHO methodology in Juznbacki Region</i> Scope: to assess WASH in schools and other parameters like exposure to mould, indoor air quality and environmental tobacco smoke; to improve methodology for regular national schools survey through the implementation of the WHO methodology² in one administrative district;
TFYR Macedonia	<p><u>National level:</u> National Public Health Preventive Programme (Official Gazette of the Republic of Macedonia No.195/2014): <i>Surveillance of WASH in schools</i> Scope: conduct inspection and drinking water analysis to identify risk factors and measures to promote healthy school setting and measures to improve pupils' health with the eventual aim of improving sanitary-hygienic situation in schools</p>
Turkmenistan	<p><u>National level:</u> National programmes, e.g. 'Provision of clean water to the population' approved by Decrees of the President of Turkmenistan Scope: to build or renovate schools with high-quality drinking-water supply and improved sanitation facilities; to develop hygiene skills in children</p>
Ukraine	<p><u>National level:</u> National Programme 'Drinking-water of Ukraine' for 2006-2020, Ordinance No. 247 (2011) Scope: to allocate funds to improve drinking-water supply and quality in pre-school establishments, schools and health facilities, primarily in rural areas</p> <p><u>Regional level:</u> Local network WASH project, e.g. 'Safe water and sanitation for the children of Ukraine' Scope: to promote hygiene and to improve children's access to safe water and sanitation by implementing technical solutions</p>

* Information reported at the meeting on advancing water, sanitation and hygiene in schools (Bonn, 18-19 September 2014)
²Further information on the WHO standardized methodology can be found in Annex 3

3.2 Target setting on WASH in schools under the Protocol on Water and Health

Some of the current plans for the implementation of WASH in schools, as reported by countries in GLAAS and described later, were developed under the Protocol of Water and Health. In accordance with the Article 6 of the Protocol, nine countries have set or in the process of setting targets addressing aspects related to WASH in schools. The national targets focus on different target areas, including the drinking-water quality, prevention of water-related diseases, access to water supply and sanitation, application of good practices and national communication (Table 7).

Table 7: Target areas for the WASH in schools targets set by the countries under the Protocol for Water and Health

Target area	Countries
-------------	-----------

Target area I: Quality of the drinking-water supplied	Azerbaijan*, Republic of Moldova, Ukraine
Target area II: Reduction of the scale of outbreaks and incidents of water-related diseases	Armenia*, Azerbaijan*, Belarus, Kyrgyzstan
Target area III: Access to drinking-water	Armenia*, Azerbaijan*, Kyrgyzstan, Republic of Moldova, Serbia, Tajikistan*
Target area IV: Access to sanitation	Armenia*, Azerbaijan*, Kyrgyzstan, Republic of Moldova, Serbia, Tajikistan*, Ukraine
Target area VI: Application of recognized good practice	Serbia
Additional national target area: Improved national communication and education	Germany

* - the country is in the process of development or drafted the national targets under the Protocol.

Table 8 presents a broad variety and specific nature of the national targets on WASH in schools and childcare settings, set by countries under the provisions of the Protocol ranging from baseline analysis to improving access to improved water supply and sanitation, decreasing specific water-related diseases of concern for the country, improving hygiene education and financing. The countries aim to set realistic achievable goals taking into consideration the specific situation related to WASH. For example, in Germany the focus is not on infrastructure development, but on improvements of communication and children's education. Other countries (mainly low- and middle-income countries) focus more on increasing pupils' access to safe drinking-water and sanitation facilities in accordance to the national or international standards and estimation of investment needs and fund allocation. Detailed information with description of formulated targets, indicators, target dates and responsible bodies (can be found in Annex 1).

Table 8: WASH in schools targets set by the different countries under the Protocol on Water and Health

Country	Target Areas	Targets
Armenia*	II, III, IV	<ul style="list-style-type: none"> ▪ Maintain the vaccination of children against rotavirus ▪ Improve access to safe drinking-water in educational facilities (from kindergarten to senior school and boarding facilities) ▪ Improve sanitation in educational facilities
Azerbaijan*	I, II, III, IV	<ul style="list-style-type: none"> ▪ Achieve appropriate quality drinking-water in schools for main chemical and microbiological parameters ▪ Develop a national strategy for prevention and control of soil-transmitted helminthiasis ▪ Vaccination of children against rotavirus and other vaccine preventable diseases ▪ Provision of improved water sources in pre-schools and schools ▪ Provide children with access to improved sanitation and conditions for hand washing with soap in pre-schools and schools
Belarus	II	<ul style="list-style-type: none"> ▪ Introduce the vaccination against hepatitis A among high risk groups in the population, focusing to pre-school and general educational institutions ▪ Reduce the morbidity by acute enteric infections related to the

drinking-water in the educational institutions		
Germany	Additional	<ul style="list-style-type: none"> Improve national communication and education of the general public regarding drinking-water, bathing and swimming, with particular consideration for children's health
Kyrgyzstan	II, III, IV	<ul style="list-style-type: none"> Increase the coverage of children in the monitoring of water-related diseases Assess the status and required investments for the improvement of water supply systems in schools and preschool institutions and develop a rehabilitation program with provision of sustainable funding sources Provide improved sanitation facilities for schools and preschool institutions
Republic of Moldova	I, III, IV	<ul style="list-style-type: none"> Achieve compliance with all existing chemical and microbiological drinking-water quality standards in schools Increase access to improved water supply sources for children in schools and pre-school institutions Provide access to improved sanitation systems for children in schools and pre-school institutions
Serbia	III, IV, VI	<ul style="list-style-type: none"> Estimate investment required for the improvement of water supply in schools and preschools facilities, supplied from individual wells or connected to rural water supply system Estimate investment required to improve access to sanitary equipment, proper waste water disposal and regular emptying of septic tanks in schools and preschools. Develop a plan for the improvement of sanitation in schools and preschools. Improve sanitation in schools and preschools Raise awareness of teachers, school staff and pupils on hygiene of the sanitation facilities in schools Improve WASH survey in schools introducing new methodology Raise awareness on adequate water supply and sanitation in schools, especially in those with individual wells.
Tajikistan*	III, IV	<ul style="list-style-type: none"> Improve water supply and sanitation in secondary schools, child care institutions and medical centres Provide schools and pre-schools with improved sanitation facilities
Ukraine	I, IV	<ul style="list-style-type: none"> Provide children in pre-school and secondary schools with drinking-water of good quality Provide improved sanitation for children in pre-school and secondary education facilities in cities, towns and villages

Note: * - the country is in the process of development or drafted the national targets under the Protocol.

3.3 Water, sanitation and hygiene coverage in schools: targets and implementation

A general progress towards achieving the water and sanitation related regional priority goal set in the Parma Declaration is shown by the evidence presented from international surveys such as the 2012 and 2014 GLAAS reports (WHO, 2012 and 2014c) and the 2014 WHO Environment and Health Policy Questionnaire (WHO, 2015), together with the information reported at the WHO meetings (Box 3). Importance of WASH in schools has been recognized as shown by the fact that the majority of countries (38) have established policies and regulations⁵ and by the commitment of a number of countries to increase their WASH coverages (Table 9).

⁵ Countries that reported having policies for WASH in schools in place in the WHO Environment and Health Policy Questionnaire and/or during the WHO Meeting on advancing water, sanitation and hygiene in schools (Bonn, 18-19 September 2014): Albania,

Table 9: Examples of WASH in schools coverage targets set (GLAAS 2014)

Participating country	Sanitation Targets		Water Targets		Hygiene Promotion Targets	
	Coverage Target ¹	Target Year	Coverage Target ¹	Target Year	Target Coverage ³	Target Year
Azerbaijan	100%	2017	Not specified	2017	Not specified	2017
Belarus	100% ²	reached	100%	reached	100%	reached
Georgia	70%	Not listed	86%	Not listed	Not listed	Not listed
Kazakhstan	27%	Not listed	52%	Not listed	100%	Not listed
Kyrgyzstan	90%	2020	100%	2020	Not listed	Not listed
Lithuania	100%	reached	100%	reached	100%	reached
Republic of Moldova	100%	2020	100%	2020	100%	2015
Serbia	100%	2015	100%	2015	100%	2015
Tajikistan	80%	2015	55%	2020	Not listed	Not listed
TFYR Macedonia	100%	Not listed	100%	Not listed	Not listed	Not listed
Ukraine	20% - 40%	2015; 2020	25% - 30%	Not listed	Not listed	Not listed

¹Indicator: facilities unless otherwise stated

²Indicator: provision of centralized sanitation systems/ drinking-water supply systems

³Indicator: facilities unless otherwise stated

Table 9 indicates that almost all the countries participated in GLAAS 2014 reporting cycle set coverage targets for water and sanitation in schools; however only less than half set targets for hygiene promotion in schools, which indicates a need to giving higher priority. Some of the reporting countries (Belarus and Lithuania) reached the coverage targets. Other countries have set a universal access target for sanitation and/or water and/or hygiene in schools: Azerbaijan, Republic of Moldova, Serbia and TFYR Macedonia. The targets and plans reported in GLAAS do not always consider the replacements of non-functional services or the reuse of wastewater septage (WHO, 2014b).

Policy implementation – from regulation to reality

Besides the abundance of regulations, the actual prevailing conditions of WASH in schools do not always match the national requirements, as shown by different school surveys recently carried out by UNICEF and WHO and other national organizations (chapter 4). This divergence indicates that an existing legal framework is not sufficient to ensure access to WASH in schools and it confirms the importance of setting targets and implementing policies with funded action plans. The WASH in schools requirements are not regulated by a single regulation, but addressed in many separate documents. This might be a hindering factor for implementing concrete activities to ensure the compliance of schools.

Armenia, Belarus, Belgium, Bosnia, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Hungary, Ireland, Israel, Italy, Latvia, Lithuania, Malta, Montenegro, Norway, Poland, Portugal, Serbia, Slovakia, Slovenia, Spain, Sweden, Tajikistan, TFYR Macedonia, Turkey, the UK, Kyrgyzstan, Republic of Moldova, Russian Federation, Ukraine, Uzbekistan

The 2015 UNICEF estimates (Box 4) present the implementation status of the target coverage and show that in the recent years the condition of WASH in schools has been monitored in many countries of the WHO European Region, especially in those with low- and upper-middle income economy. Among the reporting countries, several have reached high (higher than 85%) or universal coverage for water and sanitation in schools (Box 4).

The analysis of WASH coverage is, however, sometimes challenging as not all data sets can be easily compared. This is due to the fact that coverage indicators are not always specified and, if reported, they are highly heterogeneous. Moreover, some countries use single monitoring indicators, which do not thoroughly represent the actual condition of WASH in schools, i.e. mere presence of facilities, with no further details on accessibility or type of services (i.e. improved or unimproved service⁶); or presence of single-sex facilities, which provides more information related to privacy and accessibility but still does not inform on functionality and type of services.

Box 4: National WASH in Schools coverage estimates

National estimates for WASH in primary schools based on available data and published in the UNICEF report “Advancing Wash In Schools Monitoring” (UNICEF, 2015)

The report responds to the 2012 Call to Action “Raising Even More Clean Hands” (UNICEF, 2012b)⁷ and aims at promoting and supporting improved monitoring of WASH in schools, focusing on coverage (gathered from 149 countries between 2008 and 2013) and monitoring indicators. The national estimates were reported for 19 countries of the WHO European Region (Table 10) and are based on linear regression of the available data on WASH in schools coverage (restricted to primary schools) retrieved from the UNICEF country office annual reports and the WHO GLAAS datasets (2009 and 2011). In most countries the reported coverage are generally high (between 85% and 100%), but the indicator for the coverage data is often not known or not specified. The indicators reported by the countries include:

- Existence of any sort of water supply or sanitation (or other indicator): Bosnia & Herzegovina Presence of single-sex toilets, important to ensure privacy: Albania, Armenia, Kyrgyzstan;
- Functionality of the facilities: Albania, Georgia (not for sanitation);
- Presence of improved services: Azerbaijan, Georgia.

In Albania low water coverage is reported, with respect to functional water supply and functional/single-sex toilets in schools; in Azerbaijan low coverage for water supply (no indicator) and improved sanitation facilities is reported; in the Republic of Moldova and in Tajikistan low coverage level are as well reported for both water supply and sanitation, but the indicator is however not specified. The data reported for Kyrgyzstan show a relatively low percentage of single-sex toilets.

Between 2008 and 2013 an increasing trend for water coverage can be observed for Armenia and Ukraine and for sanitation coverage in Tajikistan, however, for some countries a trend could not be observed as the data were insufficient for the regression analysis.

Table 10: National coverage estimates for WASH in primary schools [%] (Source: UNICEF, 2015)

	Water coverage 2008	Water coverage 2013	Known indicator	Sanitation coverage 2008	Sanitation coverage 2013	Known indicator
Albania	51	51	• Functionality	30*	30	• Functionality • Single-sex toilets
Armenia	84	92		85	86	• Single-sex toilets
Azerbaijan	5*	5		68*	68	• Improved services ¹
Belarus	100	100		100	100	

⁶ Improved drinking water and improved sanitation/ sanitation facility are defined according to the WHO/UNICEF Joint Monitoring Project “Definitions and Methods”: <http://www.wssinfo.org/definitions-methods/>

⁷ More information on 2012 Call to Action: http://www.unicef.org/wash/schools/washinschools_53108.html

Bosnia & Herzegovina	100	100	• Existence	100	100
Bulgaria	100	100		100	100
Croatia	100	100		100	100
Georgia	75	75	• Functionality • Improved services	70	70
Kazakhstan ²	85	85		85	85
Kyrgyzstan	85	85		53*	53
Montenegro	95	95		95	95
Republic of Moldova	51	51		70	70
Romania	90*	90		90*	90
Russian Federation	100	100		100	100
Serbia	95	95		95	95
Tajikistan	51*	51		17	29
Turkey	99	99		99	99
Ukraine	86	100		100	100
Uzbekistan	100	100		100	100

*The data were insufficient for a reliable estimate; the same value as 2013 is reported for 2008

¹ The indicator reports the presence of improved sanitation, which is defined accordingly to the definition given in the Definitions and Methods from the WHO/UNICEF Joint Monitoring Programme as a facility that ensures “hygienic separation of human excreta from human contact”.

² Coverage targets reported under the GLAAS 2014 (Table 2) were lower compared to the coverage estimates here reported

According to data from GLAAS, after policy approval only few countries (5 of the respondents) have progressed further by developing plans for implementation, organizing funding and subsequently reviewing their policies (Table 11). Most of them have started to develop a plan to implement the WASH facilities in schools only recently. According to the GLAAS report, it seems that a strong limiting factor is the amount of available governmental budget.

Table 11: Responses to GLAAS 2013/2014 country survey: Levels of National Policy and Plan Development and Implementation for WASH in Schools

POLICIES AND PLANS	on Sanitation and on Water in schools	on Hygiene in schools
Plan being fully implemented with funding, and regularly reviewed	Azerbaijan, Belarus, Estonia, Kazakhstan, TFYR Macedonia	Azerbaijan, Belarus, Estonia, Kazakhstan
Plan costed and partially implemented based on approved policy	Republic of Moldova, Serbia, Ukraine	Republic of Moldova, Serbia, Tajikistan, Ukraine
Implementation plan developed based on approved policy	Kyrgyzstan, Lithuania, Tajikistan	Kyrgyzstan, Lithuania, TFYR Macedonia
National policy formally approved and gazetted (formal announcement)	Georgia	
No national policy or policy still under development		Georgia

3.4 Surveillance

The 2014 WHO EH Policy Questionnaire highlighted, among others, challenges with an insufficient monitoring system and enforcement mechanism. According to the results of the questionnaire and the data collected during the Meeting *on Advancing Water, Sanitation and Hygiene in Schools* (Bonn, 18-19 September 2014) (Box 5), at least 23 countries have an officer responsible for

compliance and regular surveillance is regulated in the policies of more than 35 countries. Out of 19 countries that reported at the WHO Meeting to have legal requirements for the surveillance of WASH in schools, 9 have policies that specify a frequency of one audit every year, or more often (Table 13). However, requirements and/or efficient sanctions for incompliant schools are often missing, incomplete or not implemented, as emerged from the WHO EH Policy Questionnaire itself or from the surveys analyzed in chapter 4. Minimum requirements for inspections are in fact not regulated in 19 countries (WHO, 2015). Even when the surveillance might be efficient, the lack of an enforcement mechanism for the incompliant schools, possibly due to the limited financial resources, hinders an efficient policy implementation. Additionally, surveillance does not always consist in an established mechanism for routine monitoring of all aspects related to WASH in schools, which is actually often seen as mere infrastructural (number of toilets) or a mere health issue (number of infections). The Ministry of Education or school authorities have thus no role in the monitoring, except for some countries like Kyrgyzstan and Scotland, where the Ministry of Education is responsible in the first place or shares the responsibility (Box 5).

If present, routine surveillance is not always considered as a tool for the implementation of the standards and it used to document compliance only (Box 5). Often clear or comprehensive indicators are missing and the findings are not transmitted into a mandatory reporting system for the authorities and the policy-makers, who cannot keep track of the progress nor have a comprehensive understanding of the actual situation. This lack of communication between the involved institutions is an additional hindering factor in ensuring the implementation of WASH in schools, as shown for Italy in chapter 4, where survey data show an unchanged situation in a time period of 7 years.

The data from different countries (above described) or from the same country but from different sources (e.g. national statistics and international surveys, or school principals and pupils) are not always comparable (chapter 4), due to the different perspective and the different use of indicators during the monitoring exercise. The challenges of choosing adequate monitoring indicators have also emerged in the GLAAS reports (Table 9), in the UNICEF national estimates (Box 4), as previously mentioned, and in the WHO *1st Expert group meeting on WaSH in schools* (Budapest, April 2015) (Box 5). Several countries' monitoring data have no reference to the indicator used or report only the presence of any type of facility. The presence of a facility is however a limited indicator for monitoring, as it provides no information on the absolute accessibility of the facility (e.g. on functionality) or the perceived accessibility (e.g. privacy). In general, inefficient indicators cannot provide policy-makers with meaningful information concerning the WASH condition in schools, hindering the revision process and the planning of implementation programs. Additional useful indicators in place, for example in Czech Republic, are: capacity of the facilities, compliance with basic hygienic requirements and presence of consumables.

Different examples are presented in Georgia, Scotland and Wales, where the WASH monitoring is promoted directly in schools, avoiding the potential challenges related to lack or inefficient coordination among different involved authorities. In Scotland, schools are directly involved in the reporting system for issues related to WASH in schools; in Georgia and Wales, assessment tools are included in the national regulations/guidelines allowing schools to actively participate in the im-

plementation process. Furthermore a, shared responsibility between the Ministry of Health and Ministry of Education or between school administrators and health authority for surveillance of school WASH was reported respectively by Kyrgyzstan and Scotland (Box 5).

Box 5: WASH surveillance

Surveillance for WASH in schools is present in several countries within the WHO European Region. However, surveillance does not always mean that an established mechanism for routine monitoring of all aspects related to WASH in schools exists. According to the information collected during the WHO 1st Expert group meeting on WaSH in schools (Budapest, April 2015), routine surveillance is in place in:

- Azerbaijan - accountable institution: Ministry of Health;
- Czech Republic - accountable institution: Ministry of Health;
- Hungary - accountable institution: public health department;
- Republic of Moldova - accountable institution: public health department;
- Scotland - accountable institution: health authority and school administrators;
- Kyrgyzstan - accountable institutions: Ministry of Health and Ministry of Education.

Concerning the indicator inventory comprised in the routine surveillance, information was retrieved only for the Czech Republic, where the capacity of the facilities is monitored, but as well the basic hygienic requirements and the presence of consumables are monitored (Budapest meeting, April 2015). However, surveillance does not always involve a reporting mechanism, as it might be in place for compliance purpose only (e.g. Hungary). In Kyrgyzstan an electronic monitoring system for the number of pupil and existence of water supply in schools is under implementation with the support of UNICEF (Budapest meeting, April 2015). Nevertheless, even where surveillance might be efficient, there might be a lack of measures to implement in case of school incompliance, especially because of the limited financial resources (e.g. Republic of Moldova). In other countries, like Croatia and Georgia, in case of sporadic outbreaks with high incidence surveillance is in place (Budapest meeting, April 2015).

Concerning specific requirements for surveillance, 19 out of the 20 countries participating to the Meeting on Advancing Water, Sanitation and Hygiene in Schools reported to have established legal requirements (Table 11). In 9 countries the surveillance should be done annually, or more often (Table 12). The highest frequency is required in Montenegro and in TFYR Macedonia, where monthly inspections should be carried.

Five countries (25%) – Georgia, Kyrgyzstan, Latvia, the Republic of Moldova and Turkmenistan – reported to have produced surveys in collaboration with UN projects, especially with the support of UNICEF. These pilot projects aimed not only at improving the facilities, but as well at improving the legislation, that sometimes is insufficient and does not efficiently regulate WASH in school.

Table 12: National Legislation defining the specific requirements for WASH surveillance

Countries reporting legislation which specifies requirements for surveillance:	n=19	Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia Lithuania, Montenegro, Republic of Moldova, Russian Federation, Serbia, TFYR Macedonia, Turkmenistan, Ukraine
Countries with no specific requirements:	n=4	Croatia, Germany ¹ , Italy ¹ , UK ¹

* Information retrieved via desk review or reported at the WHO meetings (Bonn, 18-19 September 2014; Budapest, 16-17 April 2015)

¹ non-statutory guidelines might be present, but the national legislation related to surveillance in schools does not specifically address WASH.

Table 13: National requirements for WASH surveillance specified by law with respect to frequency

Country	Frequency Requirements
Albania	Twice a year
Armenia	No info
Azerbaijan	No info

Bosnia And Herzegovina	Four times a year
Czech Republic	Kindergartens: once in 5 years Elementary schools: once in 2 years Additional annual unannounced inspections
Estonia	Once in 2 years
Georgia	<i>No info</i>
Hungary	Hygienic surveillance: once a year In-depth survey: each facility group once in 5-7 year ¹
Kazakhstan	<i>No info</i>
Kyrgyzstan	Once a year
Latvia	Once a year Additional audit monitoring
Lithuania	Once a year
Montenegro	Once a month
Republic of Moldova	<i>No info</i>
Russian Federation	Once a year Additional <i>ad hoc</i> inspections
Serbia	Every year
TFYR Macedonia	Once a month and 15 days before the school year start
Turkmenistan	<i>No info</i>
Ukraine	Every year

¹Information reported at the meeting on advancing water, sanitation and hygiene in schools (Bonn, 18-19 September 2014)

^{1T}he requirements are not within the legislation at present, but they are recommendation of the Chief Medical Officer and are regularly observed

3.5 Conclusions

Universal accessibility to WASH in schools, which guarantees equality for all children in the WHO European Region, could likely be achieved through the strict implementation of the available policies, with a coordinated effort from all involved institutions, under the lead of the Education Department. To this aim, it is essential to establish clear and feasible targets aiming at universal coverage, and to develop an efficient mechanism for monitoring, with comprehensive indicators for an efficient reporting system, and an adequate mechanism to correct non-compliant cases.

The landscape on the regulations on WASH in schools in the WHO European region was outlined using data from a total of 41 countries. The available data were not sufficient to provide financial figures and necessities related to the implementation of WASH in schools. The case examples reported are not meant to represent exhaustively in number and practice the regulations in place for WASH in schools in the region. The complex framework of WASH in schools policies and the multitude of institutions involved might have posed a limitation, hindering a complete retrieval and a comprehensive analysis of all policies in place with respect to WASH in schools in the WHO European Region. International reporting and assessment exercises, like GLAAS and the WHO Policy Questionnaire, and the collaboration between experts for implementation of the programme of working programme of the Protocol on Water and Health, have been essential

sources in the effort of landscaping the policies and programmes in place to ensure equal WASH in schools.

4. National Surveys on WASH in schools

One challenge for the improvement of WASH in schools is the data gap concerning the prevailing conditions in school buildings. Lack of baseline information may hinder awareness raising and understanding of the importance of WASH in schools for the protection of children’s health, the need for providing enabling learning environments and it affects the development of effective policies and programs by governments. This section summarises selected key findings of national one-shot surveys, with the aim to provide a comprehensive analysis of the condition of WASH in schools in the WHO European region. The surveys report the current issues and challenges concerning pupils’ access to WASH, the challenges concerning monitoring systems and the possible gaps in policies and regulations. Table 14 provides an overview of countries for which pilot or full-scale surveys could be identified.

Table 14: Countries where a national survey/assessment was carried out by governmental and/or intergovernmental organizations*

Countries where surveys/assessments have been conducted at national and/or sub-national level:	n=18	Albania, Azerbaijan, Bosnia and Herzegovina, France, Hungary, Italy, Croatia, Estonia, Georgia, Kyrgyzstan, Latvia, Lithuania, Republic of Moldova, TFYR Macedonia, Russian Federation, Serbia, Turkmenistan, Ukraine
Countries where surveys/assessments have been conducted with the support of UNICEF or WHO:	n=10	WHO-supported pilot surveys: Albania, Estonia, Latvia, Lithuania, Serbia WHO-supported survey: Croatia UNICEF-supported survey: Georgia, Kyrgyzstan, Republic of Moldova, Turkmenistan
Countries reporting no available survey:	n=3	Armenia, Czech Republic, Montenegro

* Information reported at the Meeting on advancing water, sanitation and hygiene in schools (Bonn, 18-19 September 2014)

Surveys from 15 countries of the WHO European region were available for the purpose of this study. Table 15 provides an overview of methodology and main outcomes of the reviewed surveys. Additional information were collected through the country representatives attending the WHO *Meeting on advancing water, sanitation and hygiene* (Bonn, September 2014) and WHO *1st Expert group meeting on WaSH in schools* (Budapest, April 2015), and presented in Box 6. The surveys were either carried out by the responsible national institutions, by NGOs, or were supported by international organizations such as UNICEF or WHO (Table 14).

Table 15: Summary of national surveys available for the WHO European Region with respect to WASH in schools

Country	Survey
Low-Middle Income Countries	
Georgia	Source: a) UNICEF Georgia; b) UNICEF Georgia and Ministry of Education and Science
	Year: a) 2012; b) 2013

Methods and coverage: a) Quantitative survey conducted in 554 preschools and a quantitative survey conducted in all schools of 11 regions and with a response rate of 95%. b) Evaluation of WASH situation in 600 school buildings. Pilot project to develop national standards for the introduction of a surveillance system and promote hygiene education.

Results:

- Water source is improved in more than 90% of premises (56% of preschools and 30% of schools have a centralized water system), but quality is not ensured: water has been tested once only in 50% of preschools and 10% of schools, and treated in 25-30% of premises. Some preschools reported intermittent water supply 2-4 days/week. More than 3% of premises need water tanks.
- Sanitation has high coverage, but 25% of schools and 12% of preschools use only unimproved sanitation facilities. A number of schools still dispose liquid waste in the school yard, especially in rural areas. In preschools children mostly use chamber pots, which are not available in 9% of premises. Average pupils-toilet ratio is 25:1 in preschools and 34:1 in schools (54:1 in urban areas).
- There are issues with cleanliness, functionality or location of the facility (outside in 35 % of schools and 28% of preschools), ventilation, illumination and privacy.
- Hand washing facilities (HWFs) are not adequate and sometimes not present inside the premises (20% of preschools; 41% of schools), nor nearby the toilet (>30%). In most of the schools soap (88%) and toilet paper (70%) are missing.
- Disabled children have no access to sanitation yet (80% of preschools; 47% of schools) nor to HWFs at school (50% of preschools; 80% of school). The conditions are generally worse in villages in the rural areas and in southern regions.

Kyrgyzstan

Source: UNICEF and Emory University's Center for Global Safe Water

Year: 2012(b)

Methods and coverage: Primary survey comprising 30 key informant interviews (with members of national and local government, experts of international NGOs, and school staff), 18 school visits and 22 focus group discussions with pupils (mainly secondary-school-aged girls, but also boys and children of grades 3 and 4); desk review of relevant publications and government documents; bottleneck analysis.

Results:

- Piped water supply is missing in 28 % of schools (water tanks or transported water are used), intermittent in 23% (few days/week in rural areas; few hours/day in urban areas), and it is from unimproved sources (within 50 meters) in 70% of schools. Also, data on water availability in schools suggest that access to WASH in schools is currently overestimated by the official statistics.
- Toilets consist of reinforced pit latrines outside the premises in all rural schools and in 85% of urban schools. The cold winter weather reduces the accessibility of outdoor facilities. The toilets adhere to the Soviet design standards, with no slab and no privacy (no doors, neither partition).
- HWFs are rarely found and are usually far from the latrines; soap is not available. Less than 10% of schools still have a functioning connection to the centralized sewerage and the lack of maintenance, translated into inefficient or irregular latrine emptying, leads to dirt and faecal matter on the ground floor, raising the risk of disease transmission. Pupils don't use the toilets, except in case of diarrhoea or menstruation. Girls complain about lack of water, missing hygiene disposal facilities, and lack of privacy, and reported to use the facilities one at a time, which changes the actual pupils-toilet ratio to 400:1.
- Hygiene education is sometimes provided, but there is no national hygiene promotion programme yet. Urban-rural and regional disparities are significant, due to the mountainous terrain of rural areas and to the unequal coverage of policies, monitoring programs and funding for maintenance (focused on centralized systems), to the detriment of minority groups. Challenges are found in the monitoring system, which is not regularly nor evenly practiced.

Republic of Moldova	<p><u>Source:</u> a) UNICEF, Ministry of Health, the Ministry of Education and the National Public Health Centre of the Republic of Moldova; b) National Center for Public Health and territorial centres (No publication)</p>
	<p><u>Year:</u> a) 2010; b) 2014</p>
	<p><u>Methods and coverage:</u> a) All schools, gymnasiums and lyceums in the country (1,526 schools) were surveyed by analyzing water samples and evaluating the school water supply and sanitation systems. For the assessment of hygiene practices one student per school was interviewed in 82 schools. b) 1,335 schools (total number of schools after school reform) and 368,356 pupils were included in the nation survey, which was conducted to collect more comprehensive information compared to the national statistics (only collecting data from urban areas). No publication is currently available and the study results were provided to the authors during the WHO 1st Expert group meeting on WaSH in schools (Budapest, April 2015)</p>
	<p><u>Results:</u></p> <p>a) Water is everywhere accessible, but from unimproved sources in many of schools (centralized supply in 69%, wells in 28%, tanks in 3%). Water quality is not compliant (microbial pollution and/or excess of nitrate, fluoride and boron) and 61% of students are consequently exposed to moderate or high health risks⁸. Other issues are: the lack of hygiene consumables (toilet paper in 76% of schools, soap in 75%, any drying tool in >52%); functionality (20% of toilets in bad technical condition); location of HWFs (far from toilets in 76 % of schools). Pupils are not satisfied of the hygiene in 52% of schools and hygiene practice is strongly reduced at schools (25% against 85% at home). Rural schools have the lowest compliance for water quality, number and functionality of facilities, and in 95% of rural schools (55% of students in the country) toilets consist in cesspools outside the building.</p> <p>b) The number of schools with unimproved water supply has decreased (centralized water supply and centralized sewage system in 92% of schools). Water quality also improved, but 50% of all pupils (39% of schools) are still considered to be exposed to moderate-high health risks. Rural-urban and regional disparity is still observed (rural and northern areas with lower compliance). Hygiene and maintenance compliance are higher in the urban areas, where higher salaries allow users (pupils/parents) to provide by themselves. 63% of the schools (75% in rural areas vs. 27% in urban areas) still have external toilets: pit latrines used by the staff only in day care centres, or a pit latrine block for staff and students in schools. In 10% of these schools in-house facilities are present, but they are either not functional or used by the school staff only. Maintenance is inadequate in 21% of schools (24% in 2009). HWFs are generally present, but only in 16% of schools the HWFs are in the washrooms and the HWFs in the canteen (48% of schools) are generally used by a limited number of pupils (some classes in primary schools).</p>
Uzbekistan	<p><u>Source:</u> UNICEF and Emory University's Center for Global Safe Water</p>
	<p><u>Year:</u> 2012(b)</p>
	<p><u>Methods and coverage:</u> Primary survey comprising 13 key stakeholder interviews (mainly with experts of NGOs) and 4 school visits for structured observation and interviews with school administrators and teachers; desk review of relevant publications and government documents</p>

⁸ acute diarrheal diseases, methemoglobinemia and fluorosis according to national data published by the National Health Management Centre and medical check-ups conducted during the study

Results:

- Centralized water supply in 74% of the premises, whereas there is no such supply in 16% (water tanks or transported water are used). In 80% of schools the water source is potentially of high risk of contamination from agricultural run-off.
- High coverage of improved sanitation is reported, but the majority of schools have outdoor pit latrines of Soviet design: adjacent for boys and girls, with no slab and no privacy (no doors, neither partition).
- Needs of disabled children are mostly not considered. The cold winter weather reduces accessibility, also due to slippery pavements and too cold or frozen water.
- In 35% of latrines dirt and faecal matter are found; hand washing facilities are rare (only in toilets inside school), and seldom equipped with soap. Probably in consequence, 75% of school-aged children were infected with one or more types of intestinal parasites in 2007.
- Significant rural-urban and regional disparities are found, with poorer conditions in rural areas and western Aral Sea regions, due to the particular terrain and climate, and to the unequal coverage of policies, monitoring programs and fund allocation for maintenance (focused on centralized systems).
- In many primary schools at least one person is in charge for the hygiene education, facultative part of the curriculum. Important topics like menstrual hygiene management, are however not included as they considered inappropriate.
- Issues and challenges for WASH in schools also include lack of monitoring system; lack of targeted governmental budgets; lack of prioritization of sanitation and hand washing.

Upper-Middle Income Countries

Albania

Source: WHO

Year: 2015

Methods and coverage: Pilot survey conducted in 12 schools using WHO methodology (Annex 4).

Results:

- Schools sanitation infrastructure is in general , but still have emerging issues. Hygiene consumables are insufficient in all schools. Illumination, provision of garbage bins, privacy (especially for boys) and temperature (during winter time) are not always ensured.
- A number of pupils reported that the water for hand washing is not always present.
- No significant rural-urban disparities observed from the inspections of sanitation and hygiene provision in schools, but disparities have emerged from the questionnaire results with respect to pupils' satisfaction. The satisfaction level is generally low and pupils avoid using toilets, especially girls. The satisfaction is higher in rural than in urban schools, where generally more children attend school and the toilet number might not be sufficient. Pupils' poor satisfaction is associated with the availability of toilet paper and soap, cleanliness and privacy.

Serbia

Source: Institute of Public Health of Serbia (Jevtić & Matić)

Year: 2014

Methods and coverage: Pilot school survey based on a standardized survey methodology (Annex 4) covering 28 schools in the Južnobački District. The survey included a questionnaire for the school staff and the students and interviews with the school administrators. Different environmental health-related risk factors were considered, including the condition of WASH facilities. (Jevtić & Matić, 2014)

Results:

- WASH facilities are satisfactory for availability, functionality and pupils-toilet ratio. All schools have a central water supply and most schools are connected to the central sewage system, the others dispose waste water into cesspits.
- All schools toilets and sometimes HWFs are gender-separated, but not always accessible to disabled pupils.

- Most schools (89%) reported repeated frequency of cleaning over the day, 11% once a day. Maintenance is reported as satisfactory in most schools and bins are present, not in each cabin though. Hot water supply was partially present.
- The student's questionnaire revealed, however, a high percentage of dissatisfaction (71%), especially related to cleanliness of toilets and HWFs and to consumables availability (96% reported missing toilet paper). More than 60% of the pupils avoid school toilets. In 96 % of schools hygiene education is part of the curriculum.

High Income Countries

Croatia
Latvia
Estonia
Lithuania

Source: WHO

Year: 2015

Methods and coverage: Survey conducted using WHO methodology, i.e. administrator's questionnaire, pupils' questionnaire and school inspections (Annex 4). The average age of respondent pupils is between 13.1 years and 15.7 depending on the country. All surveys included a limited number of schools, except for Croatia, as they were part of pilot projects. The survey in Croatia included in total 203 schools.

Results:

- Schools sanitation infrastructure is in general adequate, but common problems have emerged especially with respect to maintenance, cleanliness and availability of hygiene consumables. Consumables are especially lacking in Lithuania. Illumination and toilet bins are insufficient in some schools in Lithuania and Croatia. All countries, except for Estonia, have privacy issues due to the low percentage of lockable doors in toilet cabins. In some Croatian schools also the facility temperature is inadequate during winter.
- No significant rural-urban disparities revealed from the inspections, except for Lithuania where consumable provision in urban schools is higher than in rural schools (67% vs. 21% of toilets with toilet paper; 83% vs. 21% HWFs with soap). The pupils' questionnaire showed notable disparities with respect to satisfaction, especially in Estonia and Lithuania (2-fold change). In Croatia and Estonia the satisfaction level is higher in rural than in urban schools, which might be related to overcrowding in latter. In Latvia and Lithuania satisfaction level is higher in urban than in rural schools. The majority of pupils in all countries are not satisfied with availability of toilet paper and soap, cleanliness, privacy, and thus avoid using school toilets. In most of the countries girls were more likely to report using the toilet daily and to be satisfied with privacy in the toilets as compared to boys (except in Croatia). In all countries some pupils reported that water for hand washing was not always present, especially of concern in Croatia.

France

Source: ONS - Observatoire national de la Sécurité et de l'Accessibilité des établissements d'enseignement (National Observatory for Safety and Accessibility of Educational Institutions)

Year: a) 2007 b) 2013

Methods and coverage: a) Survey including teachers' and students' questionnaires from 1,739 colleges and high schools (18% of all the public schools). b) Survey including teachers' and pupils' questionnaires from 817 primary schools (24,781 children included)

Results:

a) Colleges and high schools

- 28% of pupils never visit the toilet, avoiding use of sanitation facility and drinking-water, which is only inside the toilet in half of the schools. Pupils complain about bad smell, damaged infrastructure (19%), lack of privacy (12%), especially for boys, and lack of consumables (toilet paper, soap and driers). The complaints reported by children (in 15-42% of schools) were much less compared to those of school staff (82-90%). Schools actually provide consumables; however improper use, the lack of maintenance and poor supervision affect their continuous availability.
- Pupils' improper behaviours (tobacco smoking, alcohol consumption and drug use), especially from male students, and bullying might affect the environment and the accessibility of the sanitary facilities. 21% of schools reported aggressions inside the sanitary facilities,

especially in colleges. In 2% of premises cleaning is not assured for the whole school day and in 61% the facilities are cleaned once per day. Despite the dedicated law, 10% of schools do not have any appropriate facilities and 38% have only one or two appropriate facilities for disabled pupils.

b) Primary schools

- 48% of pupils visit the toilet only in case of urgent need and 7% never. 14% avoid going because they are afraid to be trapped in the toilet; to be spied by other children; and to be victim of bullying. Several pupils seem to present pathologies related to avoidance: acute or chronic constipation (15%), urinary tract infection (22%), but verification is needed.
- According to teachers, the issues are: the insufficient cleaning frequency once per day (reported by 15%), the lack of WASH facilities on higher floors, impairing accessibility and appropriate surveillance. Many aspects of the facilities are not adequate to pupils needs, from the water temperature to the water pressure, the quality of consumable and due to the lack of adequate equipment for children. Inadequate cleanliness and ventilation are reported in respectively 19% and 34% of premises, causing bad odours.
- Pupils' complaints are in line, but generally enhanced. 50% of schools partitions are missing or do not ensure privacy; in 10% the doors can't be locked; in more than 25% of schools there are no separated facilities for pupils and teachers and/or boys and girls. Some schools even reported the abnormal use of the school facilities as public toilets.
- Toilet brushes, soap and any kind of hand drying facilities are missing in 56%, 13% and 10% of schools. In 1% of schools, toilet paper and HWFs are not present inside the facilities. Disposable bins in the girls' toilets are missing in the 76% of schools. The topic is anyway rarely addressed from children (23%) to their parents, or in the minutes of the school council. Hygiene education is provided in 73% of schools and few teachers reported significant improvements after raising awareness. 40% of schools have no facility for disabled pupils.

Hungary

Source: National Institute of Environmental Health and Health authorities (No publication)

Year: 2001-2014

Methods and coverage: In-depth surveys conducted in different years in 5,000 primary and secondary schools, 4,600 kindergartens, 550 nurseries, 225 premises meant for family day cares and 205 play-centres. The surveys comprehensively assess the environment, including WASH aspects, and are complementary to the yearly routine surveillance of the public health authorities. No publication is available yet.

Results: A central sewage system is not available in less than 20% of premises. Water supply is centralized everywhere, but in 13% of schools the chemical quality is not compliant. The number of washrooms, HWFs and toilet seats is compliant with national requirements in 92% of schools; 81% of kindergartens; 86% of nurseries. Toilet paper is missing in 8% of schools and hygiene is not adequate in less than 10%. An overall improving trend is observed, except for maintenance, which is still an issue (30% of schools in 2012). Maintenance is inadequate for washbasins (18% of schools), toilet slab, doors, windows and walls, illumination or ventilation (issue in 7% of the nursery and kindergarten), corroded pipelines. Mixed water is available in most kindergartens and nurseries (>90%), but not often in schools.

Italy

Source: Cittadinanzattiva - independent non-profit organization named (Active-citizenship)

Year: 2008-2014

Methods and coverage: Survey involving direct observation and comprising 213 schools in 2014, 111 schools in 2012. The sample comprises less than 1% of public schools, but from all regions.

Results:

In schools consumables are missing: toilet paper (40% of schools), soap (44%), and any kind of drying towel (66%). In 2012 more than 33% of schools (including primary schools) are cleaned only once a day and in 12% dirt is observed. In circa 30% of schools privacy is not ensured

	<p>(damaged doors). Drinking water from taps is always present, but sometimes with an unpleasant taste. 38% of schools in 2013 had no certificate for compliance with hygiene and health norms (released by local health authorities. Moreover, no significant difference is found comparing the reports from 2008 until 2014. Accessibility for disabled people is impeded in 34% of schools (2013); disaggregated data for architectural barriers and for missing hygiene certificates show significant regional disparities, with southern regions reporting lower compliance.</p>
Russian Federation	<p><u>Source:</u> a) Federal Service for Supervision of Consumer Rights Protection and Human Well-Being (No publication); b) Peer reviewed articles published by other national institutions (Ponomarenko and Cherkashin, 2009; Zulkarnaev <i>et al.</i>, 2009; Rapoport <i>et al.</i>, 2012)</p> <p><u>Year:</u> a) 2000-2013; b) 2009 and 2012</p> <p><u>Methods and coverage:</u> a) Analysing reports of the centralized water and sewage systems service providers in all districts of the Russian Federation; b) Assessment of hygienic conditions in educational institutions in specific areas of the country - with low coverage (full summary in chapter 6)</p> <p><u>Results:</u></p> <p>a) Less than 6% of the schools are not connected to central sewage system and central water supply (2013). Most districts have 2-3% of schools without central systems, while three districts present a higher number of schools (highest: 18% of schools having no central sewage system and 22% of the schools have no central water supply in Far Eastern Federal District). An improving trend has been observed since 2000. The disparity can be attributed to the geography of these territories, where a larger number of settlements are hard to reach. However, it is not clear if any alternative improved sanitation or water source is present.</p> <p>b) Research studies were conducted on a smaller-scale and are not representative for the country. However, they reveal other challenges not assessed by the national report: age of the school buildings (where standards implementation is pending); overcrowding; use of buildings not designed for educational purpose; inadequate sanitation facilities and inadequate hygienic conditions. Rural- urban disparity is also reported.</p>
Scotland	<p><u>Source:</u> Ipsos MORI, commissioned by Scotland's Commissioner for Children and Young People</p> <p><u>Year:</u> 2013</p> <p><u>Methods and coverage:</u> Survey including 2,154 young people in 59 secondary schools on perception and school policies related to WASH</p> <p><u>Results:</u></p> <p>Toilets are not appreciated by a large part of the pupils: 27% of pupils think the school toilets are poor or very poor and the majority of pupils reported issues concerning lockable doors, toilet paper, soap and overall cleanliness. If pupils have to ask for permission to go to the toilet, 16% of them are rarely allowed to go and 2% reported they were never allowed to. A significant number of pupils also reported to feel uncomfortable (embarrassed, annoyed or worried) when asking for permission (especially girls). Accordingly a very high number of pupils avoid using the toilet at school: 10% never use school toilets and 46% try to avoid using the school toilets and only go if they really have to.</p>

4.1 Highlights

As outlined in chapter 3, the countries in the WHO European Region have been making progress towards ensuring WASH in schools, especially in establishing national policies and targeted programs. Effective decision making relies on accurate information and chapter 4 presents the main results of the assessments conducted in the region on the condition of WASH in schools. In line with the political commitment, many countries (18) have collected information and conducted one-shot surveys on WASH in schools in recent years, the majority with the support of international organizations like UNICEF, WHO and other NGOs (Table 14). Such data collection exercis-

es are an important step towards appreciating and improving the WASH conditions in schools. The highlights that emerged from these surveys allow the countries to identify the main problems and direct the efforts on a specific focus, to have a more efficient action plan and use of funds. Various surveys are in fact pilot projects within a program for renovation or general improvements of WASH in schools. Additional information was collected during the WHO Meeting for WASH in schools (Box 6).

Box 6: WASH related issues in other countries of the WHO European Region

According to the information collected during the WHO *Meeting on Advancing Water, Sanitation And Hygiene in Schools* (Bonn, September 2014) (Annex 3), additional challenges affects the access of WASH in schools for pupils in the WHO European Union, also in countries for which comprehensive information was not retrieved. The important issues that have emerged are the following:

- the lack of proper ventilation (in Estonia and Latvia), enhanced by the high number of students sharing the same facility;
- the lack of an appropriate sewage system (in 44% of schools in Ukraine);
- the major water source is unsafe in schools of TFYR Macedonia and Ukraine (2% of schools), as it does not comply with the chemical and microbiological requirements;
- the overcrowding of the schools and consequently of the WASH facilities (in Albania and Latvia)
- the insufficient provision of hygiene consumables, reported in Lithuania and Ukraine;
- the insufficient maintenance of the sanitary facilities and the poor quality of the building materials used for the renovations, reported by a survey conducted in Latvia;
- The inequalities among the student populations, reported in a survey conducted in TFYR Macedonia: the WASH accessibility is particularly impaired for the students in the rural areas.
- The level of children' awareness on adequate hygiene and its importance was reported as very unsatisfactory in TFYR Macedonia
- Few new schools, built after the approval of the regulations, are compliant with the current standards for WASH, showing a limited support for renovation in old buildings (TFYR Macedonia)

According to an unpublished survey conducted by the German Toilet Organization that involved 426 pupils in Berlin, consumables and cleanliness are issues of concern also in Germany. In the capital city 81% of the respondent pupils reported that the toilet facilities are not clean enough, and many never or rarely have soap (46%) or toilet paper (58%) available. The majority of the children reported to care about the toilet conditions in schools, but 11% of pupils never use the school toilets and 65% of pupils use them only in case of urgent need.

- **Challenges for the accessibility to WASH in schools**

The reported surveys show that many important issues are still affecting the condition of WASH in schools and preschools in the countries of the WHO European Region (Figure 3). Many schools are not compliant with national regulation, or with the WHO guidelines (2009), regardless of the economic status of the country. Limiting geographical characteristics, lack of adequate or comprehensive legislation, lack of funding and prioritization affect school compliance. In two countries, i.e. the Russian Federation and TFYR Macedonia, it also emerged that school buildings are often old and were not renovated after the recent norms were approved, showing the importance of implementation programs. A low reporting frequency of an issue by the countries might not be only related to the absence of the specific issue, but also on the different focus of the surveys. Some issues might thus be simply underreported.

Besides the mentioned inadequacies, a need for improvement of the enforcement system for follow-up actions in incompliant schools is seen. This emerged especially in Italy, where between 2008 and 2014 no substantial improvement in WASH in schools was observed and many operating schools have no certificate for compliance with the norms for hygiene and health (released by the local health authorities).

The surveys also show some challenges in the reporting system as well, highlighting cases of over-reporting of WASH accessibility. A significant difference is in fact observed by comparing indicators with different level of completeness (e.g. provision of water supply in general, provision of improved water supply and functionality, or quality of improved water supply), confirming the importance of strong indicators, with clear definition, to properly assess the accessibility of WASH in schools. Other examples of overestimation of state of WASH in schools are irregular monitoring and/or superficial assessments, suggesting the need for detailed surveillance requirements for the implementation of an efficient monitoring system. In the Russian Federation national statistics require reporting the WASH in schools by percentage of schools having a central water supply and sewage system not necessarily considering hygiene conditions as revealed by the small scale survey conducted in the country. In case of Kyrgyzstan, the national statistics omit pit latrines and data on functionality. In Hungary and the Republic of Moldova, one-shot surveys complete the information collected by the national monitoring, which do not consider all WASH aspects or all schools.

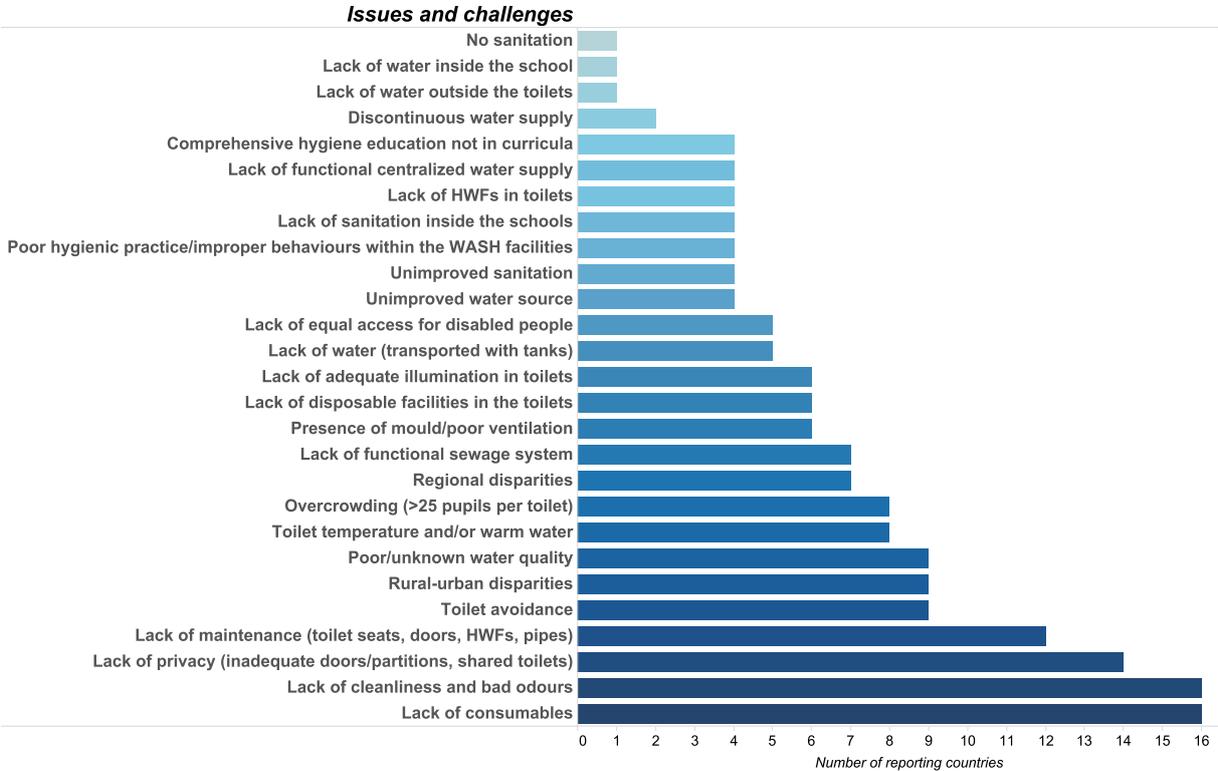


Figure 3: Challenges and issues concerning WASH in schools mentioned in the surveys and assessments conducted within the WHO European Region. Reported issues are listed by number of reporting countries

Information retrieved from the surveys evaluated in chapter 4 or reported at the Meeting on advancing water, sanitation and hygiene in schools (Bonn 18-19 September 2014). The percentage of schools reporting the specific issue may significantly differ between different

countries; the number of countries is not assumed to be representative of the actual state in the WHO European Regions, as issues might not be reported but may still be present. Overcrowding was set at ratios lower than 1:25 toilets to pupils, in accordance to the WHO guidelines (WHO, 2009). Privacy was affected in different countries in different ways (missing or damaged doors, shared facilities between boys and girls, shared facilities between teachers and pupils, missing or broken lockable facilities). In one high-income country unimproved sanitation was reported because in some schools the facilities were misused as public toilets.

- **Water accessibility and water quality**

One of the most important issues emerged from the surveys is the lack of safe drinking water in many schools (especially in the low-income countries), as the water source might be unimproved, or the quality of the available water is unknown or reported as incompliant with national chemical and microbiological requirements (Figure 3).

Distinct problems became visible from the analysis of the data considering the different economic status of the countries⁹. For several low- and upper-middle income countries the national requirements and international criteria (WHO, 2009) are not met with respect to water supply and water quality. There are still many schools without improved water supply; inadequate number, location and functionality of HWFs and sanitation facilities. HWFs are however found non-functional in several high-income countries as well.

- **Pupils' perceptions**

Assessing pupils' perception emerged as an essential instrument to identify hidden issues, which might not be acknowledged even by schools staff, limiting the risk of accessibility over-reporting. Teachers' and children's perception of WASH facilities in schools are sometimes contradictory, showing how teachers' might not always be aware of all children's issues and needs and showing a lack of communication between two main actors in the schools systems. This might be due to the fact that WASH needs especially concerning cleanliness and maintenance, are still not fully understood and are not seen as a priority, as reported explicitly in France, Kyrgyzstan, Scotland and Uzbekistan. WASH needs are instead often seen as a taboo, as suggested by the lack of previously mentioned lack of communication, by the lack of a comprehensive hygiene education in school curricula (reported in all low-middle income countries, France and TFYR Macedonia), and confirmed by the described discomfort of children that have to request permission to go to the toilet (reported in Scotland). In Scotland it also emerged that school policies for pupils' toilet visits might be in conflict with children's needs, presenting a further limit to ensure access to WASH in schools.

- **Privacy**

Pupils also complain about the lack of privacy (Figure 3). Privacy is affected by the lack of separated toilets for boys and girls and/or for pupils and teachers, missing or damaged doors, missing or malfunctioning locks for the toilet cubicles, missing partitions between latrines or urinals or partition sizes inadequate to the need of pupils, which are afraid of being spied or bullied by other pupils. Lack of privacy, together with other issues like poor illumination and the little supervision, caused by the distance of the facilities (outside the building, or on another floor of the building)

⁹ Economic status obtained as GNI per capita, calculated with the World Bank Atlas method, retrieved from: World Bank: Country and Lending Groups (<http://data.worldbank.org/about/country-and-lending-groups>)

also facilitate bullying. Children in France reported to avoid going to the toilet also because they fear to be harassed from other students.

- Cleanliness, hygiene consumables and maintenance

All countries reported, in higher or lower percentages, unsatisfactory conditions concerning cleanliness and the provision of consumables like toilet paper and soap, primary hygienic tools to prevent transmission of infectious diseases (Figure 3). From the study conducted in France, it appears that the lack of consumables is not only due to reduced public funding, but also due to improper behaviours of the students themselves: toilet paper might be available but misused. Asocial behaviours might anyway be associated with the hygienic conditions in schools, as it will be described in chapter 5 (Rapoport et al., 2012). Concerning cleanliness, the need for more frequent cleaning emerged from the surveys conducted in France and Italy. In schools where one cleaning per day is ensured, in accordance to the national regulation, dirt accumulates during the school day. Besides, cleanliness was reported insufficient by students in Serbia, where the cleaning of most facilities and HWFs was reported to be done repeatedly over the day, suggesting possible issues with children's behaviours and/or quality of the cleaning service. The students suffer from the absence of consumables and complain mostly about the bad smell of the facilities.

Another common issue is the insufficient maintenance of the washrooms - in France and Latvia reported together with the use of low-quality equipment or building materials - that highly affects pupils' access to WASH in schools even in fully furnished schools (Figure 3). It is, thus, important to consider the level of maintenance and the functionality of the facilities when assessing the conditions of WASH in schools, as otherwise they might be overestimated.

- Sanitation facilities

For several low- and upper-middle income countries the national requirements and international criteria (WHO, 2009) are not met with respect to the sewage systems and the liquid waste disposal. Overcrowding of the facilities is especially reported in low- and middle-income countries. Nevertheless, overcrowding of schools and eventually of facilities was also reported in Albania, Latvia and Russian Federation. The presented data reveal that the sanitation facilities are often in unpleasant conditions regardless the economic status of the country. As a result, even where WASH facilities seem to be adequate, a large number of students do not make use of them. It appears that the proportion of non-users decreases with better economic conditions in the countries, but it never reaches satisfactory levels. In the survey conducted in France, it was outlined that the avoidance might affect students' fluid intake, as drinking-water is often not available outside the toilets. Furthermore, a significant number of pupils present potentially related pathologies, like constipation or urinary tract infection. The survey results suggest thus the need to assess the association between the facility conditions and the prevalence of the mentioned pathology among pupils.

- Equity

Equitable access is often a challenge in schools as well. Despite the regulations, in most of the countries accessibility to WASH facilities for disabled people is often not ensured (Figure 3). Access for girls is also particularly impaired, as menstrual hygiene management is often not properly addressed by the lack of privacy, the lack of disposable bins and the lack of adequate hygiene education covering gender-specific aspects (Figure 3).

Rural-urban and regional disparities are often observed (Figure 3), especially in low-middle income countries where in rural areas, often populated by minorities, the situation concerning the provision of drinking-water and sanitation facilities is much worse than in urban areas. From bottleneck-analyses conducted in Kyrgyzstan and Uzbekistan, it emerged that rural areas with peculiar geographical characteristics are excluded by national policies and renovation programs focusing only on central systems. This finding suggests the need for national policies to consider decentralized on-site alternatives for areas that are less accessible or where natural water resources are not available. The rural sanitation facilities in low-middle income countries are more often outside the school building, further affecting pupils' accessibility, especially in those regions with cold weather. In winter, accessibility is particularly affected, due to low temperature in the facilities and lack of warm water, reported by several countries with different income economies (Figure 3). In some cases water is in fact too cold or frozen, severely hindering hand washing practice and facilitating the spread of infectious diseases. In low-middle income countries with pit latrines outside the building, another problem encountered in winter time is the safety of the facilities: the dirt around the latrines may freeze, making the pavements slippery. In urban areas, the factors limiting the access to WASH in schools are more often related to lack of consumables, overcrowding and lack of maintenance. Where disparities are not reported, disaggregated data are as well not presented.

4.2 Conclusions

The retrieved surveys originated from high and low-middle countries mostly. Most of the analysed surveys were available in English as they were conducted in collaboration with an international organisation, like WHO or UNICEF. Surveys were also analyzed in other languages, like French, Russian and Italian. More materials may be available within national institutions, but they were not retrievable through the considered sources. Aside, the limited number of available surveys may also suggest a lack of surveillance reporting and/or a lack of international information exchange about WASH in schools.

Typically, surveys focus on the level of accessibility and conditions of sanitation and hygiene facilities, availability of essential consumables for a proper hygienic behaviour (soap and toilet paper), availability of water, as well as assess pupils' perceptions and level of satisfaction. Menstrual hygiene and hygiene knowledge are not often assessed. Overall the indicators are heterogeneously chosen and, by comparing different surveys, a clear difference is notable in the ability to depict the actual situation, suggesting the need for national and international organizations to set and utilize a minimum of adequate indicators, with a clear definition of terms to be used (e.g. toilet vs. toilet seat vs. WC vs. washroom). This could avoid possible data gaps, facilitate data inter-

pretation and promote the production of comprehensive assessments in all interested countries. For example, privacy within the facilities emerged as a relevant issue affecting WASH accessibility only in the studies that considered it. Underreporting may be the reason why lack of water outside the toilet and intermittent water supplies are less commonly reported. Additionally, where disparities were not reported, disaggregated data were not considered. Streamlined indicators would also contribute to the international dialogue and progress comparison, allowing data consolidation and promoting international collaborations and coordination.

One-shot surveys proved their importance as tools for in-depth assessment, coming with a specific methodology and providing a comprehensive picture on WASH in schools. In fact, figures reported by one-shot surveys significantly differ from national monitoring that focus on the number of facilities only or on a single type of service (e.g. central system), without considering other types of facility, functionality and accessibility. One-shot surveys are also useful to assess the efficiency and the cost-effectiveness of policies and plans, showing how local authorities responsibly manage the building and hygiene programs. Moreover, focusing on disaggregated data reveals possible regional and rural-urban disparities and policies gaps can be identified. Finally, one-shot surveys involving teachers and pupils can be an event to promote hygiene in schools and involve and stimulate relevant stakeholders like the school community.

5. Literature Review

A literature research was conducted by screening the databases PubMed and Science Direct for publications focusing on WASH in schools and specifically addressing the topics Drinking-water, Hygiene Behaviour, Condition of Water and Sanitation Facilities, Menstrual Hygiene and Health Assessments. The research methodology, specified in chapter 2, was based on the literature review carried out by Jasper *et al.* (2012), which investigated the health effects of water and sanitation in schools in a global perspective. The findings confirm the direct link between WASH in schools and pupils' health. The results provide evidence that a general improvement in WASH in schools has beneficial effects on pupils' fluid intake and is decreasing absenteeism rate. School absenteeism was shown to decrease, because improved access to WASH reduces the incidence of diarrheal and gastrointestinal diseases and the discomfort of girls during menstruation, a remarkable problem potentially triggering high dropout rates among young women in developing countries.

The methodology of Jasper *et al.* (2012) has been adapted to examine relevant themes in the WHO European Region. The literature research delivered 35 articles, all conducted in countries of the WHO European Region and meeting the inclusion criteria (specified in chapter 2). Seven further articles were subsequently added, five in Russian language upon suggestion of a country representative, for a total of 42 articles. Table 16 summarizes the outcomes of the reviewed journal articles.

Table 16: Summary of scope and outcomes of the reviewed literature

Original Title	Author / Year / Location	Scope	Outcome
Drinking-water			
Drinking-water in schools	Brander, 2003, UK	To evaluate the effects of the 'Water is Cool in School' campaign	The campaign has increased awareness on the importance of drinking-water but fluid intake is highly dependent on availability of facilities in schools and school's internal regulation related to drinking of water for the pupils.
A survey of drinking and toilet facilities in local state schools.	Croghan, 2002, UK	To measure accessibility, availability and cleanliness of toilets, hand washing facilities and drinking-water	A significant part of the schools failed in providing facilities suitable for children needs. Only a minority of schools allow students to drink during lesson and to bring drinks to school in general.
Effects of drinking supplementary water at school on cognitive performance in children.	Fadda <i>et al.</i> 2012, Italy	To investigate the effects of the amount of fluid intake during the school day on the cognitive performance and the subjective state	84% of the surveyed children were in a state of mild dehydration at the beginning of the school day; the supplementation of drinking-water indicates a positive effect on short-term memory.
A study of drinking facilities in schools.	Haines & Rogers, 2000, UK	To assess the provision of drinking-water in UK schools	Most schools (approximately 70%) provide water for all children at lunchtimes; to leave the lesson for drinking-water was permitted in less

			than half of the surveyed schools; in most schools drinking-water was available only from the taps.
Fluid for thought: availability of drinks in primary and secondary schools in Cardiff, UK.	Hunter <i>et al.</i> , 2004, UK	To assess the provision of potables in schools	More than a half of the schools were equipped at least with one drinking-water facility and milk was available; 68% of primary schools allow the pupils to leave the rooms during the lessons to drink; in none of the secondary schools this was allowed.
A study of the association between children's access to drinking-water in primary schools and their fluid intake: can water be cool in school?	Kaushik <i>et al.</i> , 2007, UK	To investigate the relationship between water availability in the classroom, children's fluid intake and the frequency of toilet visits	The amount of fluid intake was higher in schools with free access to water during lesson, compared to schools where access is limited or prohibited; toilet visits are not influenced by free or restricted access to drinking-water during lessons
Does the provision of cooled filtered water in secondary school cafeterias increase water drinking and decrease the purchase of soft drinks?	Loughridge & Barratt, 2005, UK	To assess the impact of health promotion and the free provision of cooled filtered water	The higher consumption of fluids was observed in school where health promotion activities and the water provision take place.
An exploration of factors that influence the regular consumption of water by Irish primary school children.	Molloy <i>et al.</i> , 2008, Ireland	To explore the knowledge of teachers about the consumption and effects of water on their students and the barriers which hinder the children to have access to drinking-water during school lessons	The interviewed teachers weren't aware of the children's need of fluid intake and its effects on health and concentration; this knowledge gap seems to have an impact on the consumption of fluids of the children.
Promotion and provision of drinking-water in schools for overweight prevention: randomized, controlled cluster trial.	Muckelbauer <i>et al.</i> , 2009, Germany	To assess the impact of combined measures of environmental and educational interventions promoting drinking-water consumption in the prevention of obesity of pupils	Interventions show a remarkable reduction (31 %) in the risk to be obese in comparison to schools which weren't part of the intervention; concurrently fluid intake increases.
Feasibility and Impact of Placing Water Coolers on Sales of Sugar-Sweetened Beverages in Dutch Secondary School Canteens.	Visscher <i>et al.</i> , 2010, The Netherlands	To explore the effects of the installation of water coolers on soft drinks sales	The placing of water coolers as a solitary intervention seems not to be effective in influencing the students behaviour promoting drinking more water and less soft drinks.
Hygiene Practice			
The impact of common infections on school absenteeism during an academic year.	Azor-Martinez <i>et al.</i> , 2014, Spain	To investigate the potential of reducing the absenteeism rate using an additional hand sanitizer besides soap	The rate of absenteeism was significant lower in the experimental group, using an additional hand sanitizer, than in the Control Group.
Hygiene tips for kids	Gebel <i>et al.</i> , 2008, Germany	To describe a hygiene education programme designed for school and kindergarten settings	Positive effects were observed on children's behaviour and on the cooperation and communication between public health authorities and teachers, children and their

			parents.
What are school children in Europe being taught about hygiene and antibiotic use?	Lecky <i>et al.</i> , 2007, EU	To assess the educational structures and the school curricula in six European countries for the implementation of teaching resources specific for hygiene and antibiotic use	The majority of the schools provide education on hand hygiene practices from a young age. The curricula in all evaluated countries cover the topic of human health and hygiene.
Alcohol-based hand-disinfection reduced children's absence from Swedish day care centers	Lennell <i>et al.</i> , 2008, Sweden	To investigate the potential of reducing the absenteeism rate using an alcohol-based hand sanitizer in addition to regular hand washing at day care centres	The practice of hand-disinfection introduced among children and caregivers significantly decreased children's absenteeism due to infections.
Mandatory hand washing in elementary schools reduces absenteeism due to infectious illness among pupils: a pilot intervention study	Nandrup-Bus, 2009, Denmark	To investigate the effect of mandatory hand washing on school absenteeism caused by infectious diseases	Pupils washing their hands three times a day had less absence periods due to infections than the control group, which received no instruction.
Impact of an educational intervention upon the hand hygiene compliance of children.	Randle <i>et al.</i> , 2013, UK	To develop measures to increase the hand hygiene compliance of children	The intervention and the introduction of a yo-yo equipped with an UV light led to a remarkable improvement of hand washing habits, which sustained for more than one year.
Can a hand washing intervention make a difference? Results from a randomized controlled trial in Jerusalem pre-schools	Rosen <i>et al.</i> , 2006, Israel	To assess the impact of hygiene programmes, specifically if they are conducive in promoting hand washing and reducing absenteeism	The amount of children washing their hands almost tripled; the absenteeism rate, however, wasn't affected.
Formative research on the feasibility of hygiene interventions for influenza control in UK primary schools.	Schmidt <i>et al.</i> , 2009, UK	To detect the current need for enhanced hand hygiene interventions and spot barriers which may hinder their implementation	Implementation of intensive and regular hygiene activities in primary schools appear to be most effective in times of temporary health threats like an influenza pandemic.
Hand hygiene compliance and environmental determinants in child day care centers: An observational study	Zomer <i>et al.</i> , 2013a, Netherlands	To evaluate the caregivers' compliance to hand hygiene guidelines in day care centres and to identify environmental determinants of behaviours related to hand hygiene	In 122 analyzed preschools overall compliance was 42%. Factors significantly associated with the hand hygiene behaviour were number and type of towels available in the facilities, with paper towels being a positive factor for increasing compliance to the guidelines.
Sociocognitive determinants of observed and self-reported compliance to hand hygiene guidelines in child day care centers	Zomer <i>et al.</i> , 2013b, Netherlands	To evaluate the caregivers' compliance to hand hygiene guidelines in day care centres and to identify socio-cognitive determinants of behaviours related to hand hygiene	Factors significantly associated with the hand hygiene behaviour were knowledge of the guidelines and perceived disease severity. Factors associated with the self-reported hand hygiene compliance were as well guideline awareness, perceived importance, perceived behavioural control (ease), habit and children at home.

A hand hygiene intervention to decrease infections among children attending day care centers: design of a cluster randomized controlled trial	Zomer <i>et al.</i> , 2013c, Netherlands	To evaluate the effectiveness of an hygiene intervention aimed to improve caregivers' and children's compliance with hand hygiene guidelines	Description of a study protocol to carry out a cluster randomized control study.
Condition of Water & Sanitation facilities			
Standards in school toilets - a questionnaire survey.	Barnes & Maddocks, 2002, UK	To assess the perception of children on school toilet facilities and the effects on their habits in using the facilities	A significant part of the surveyed children don't feel comfortable using school toilet due to their condition.
A survey of drinking and toilet facilities in local state schools.	Croghan, 2002, UK	To measure accessibility, availability and cleanliness of toilets and hand washing facilities providing drinking-water	A significant part of the schools failed in providing facilities suitable for children needs.
Standards in school toilets: do extra resources make a difference?	Fujiwara-Pichler <i>et al.</i> , 2006, UK	To assess state of WASH in schools after the improvements done in South Wales schools and reported in the study by Barnes and Maddocks (2002)	Increased availability of the facilities alone is not enough for improving school toilet standards. Only a slight improvement in pupils' perception was reported.
School hygiene today. Problems known for a century are still relevant	Heudorf & Exner, 2008, Germany	To compare current with past problems concerning school hygiene	The problems that were present in the past and are still present today are insufficient cleaning of sanitation rooms and non-functioning lavatories.
Hygiene in Schools – also an important responsibility of the Public Health Service	Heudorf <i>et al.</i> 2011, Germany	To assess the compliance of schools with the national norms on Standard Operating Procedures for hygiene in schools, and the compliance of public health departments with their obligation to monitor hygiene in school	From 180 schools, only 80 were able to present their SOP; approximately 70 % of the school wash basins were equipped with liquid soap and disposable towels. In a second assessment an overall improvement was observed due to a concurrent influenza pandemic.
Better loos for schools	Jones & Wilson, 2007, UK	To assess the current state of toilets in Glasgow schools	The results of the children's questionnaires used in the study showed that overall the condition of toilet facilities are insufficient.
Perceptions of school toilets as a cause for irregular toilet habits among schoolchildren aged 6 to 16 years.	Lundblad & Hellström, 2005 Sweden	The study seeks to explore the perception of pupils on school toilets and the impact on their habits in using them	The conditions of the toilet facilities in many cases were not suitable for the children leading to unhealthy toilet habits during school time.
Experiences of children treating functional bladder disturbances on schooldays	Lundblad <i>et al.</i> , 2007, Sweden	To investigate experiences of children treating functional bladder disturbances on schooldays	School toilets are not adapted to the needs of children with functional bladder disturbances.
Children's experiences of attitudes and rules for going to the toilet in school	Lundblad <i>et al.</i> , 2010, Sweden	To investigate the significance of school rules for toilet visits for children's experience and toilet habits	School rules for maintaining order in classrooms are not adapted to children's physical needs. Children might not ask permission to go to the toilet so that they do not have

			to make their private need public.
Hygienic characteristics of children's educational establishments	Ponomarenko & Cherkashin, 2009, Russian Federation	To investigate significant factors for the assessment methodology used to investigate the hygienic conditions in schools	Four factors affecting WASH in schools were identified: school location, school building, sanitary-technical infrastructure and the education process.
Hygienic evaluation of educational conditions and health status in junior pupils from rural schools	Rapoport <i>et al.</i> , 2012, Russian Federation	To evaluate the hygienic conditions and the health status of pupils in rural junior schools (8-10 years old pupils) in the rural areas of Vyazma, Smolensk Oblast, Central Federal District.	One fourth of the rural schools are in need of repairs and buildings not meant to be schools are also being used. Main problems identified: lack of centralized sewage system and water supply, and poor hygienic conditions. A correlation between hygienic state of the school, disobedience and asocial behaviour was observed.
Improving school sanitation in a sustainable way for a better health of school children in the EECCA and in the new EU member states	Samwel & Gabizon, 2009, Ukraine and Romania	To assess the effects related to the introduction of dry urine-diverting school toilets in a school in Romania and Ukraine	As a result of the intervention the toilets can be located indoor and contribute to a greater comfort and safety for the children.
Children's experiences of school toilets present a risk to their physical and psychological health	Vernon <i>et al.</i> , 2003, Sweden and UK	To investigate problems with school toilets described by parents and children	The responses of the children indicate that dirty toilets, inadequate privacy and intimidation and bullying are the three major problems in school toilets.
Integrated assessment of the learning environment in educational institutions of various types	Zulkarnaev <i>et al.</i> , 2009, Russian Federation	To assess the condition of WASH in general schools in Ufa, Republic of Bashkortostan, Volga Federal District	Most of the surveyed schools are old and do not comply with the national norms for hygiene and hygiene facilities. The hygienic situation was reported as generally bad and 'moderately hazardous'. Even some new schools did not meet the sanitary standards.
Menstrual Hygiene Management			
A survey of drinking and toilet facilities in local state schools.	Croghan, 2002, UK	To measure accessibility, availability and cleanliness of toilets and hand washing facilities providing drinking-water	A significant part of the schools failed in providing facilities suitable for children needs.
Sanitary towel provision and disposal in primary schools.	Jones & Finlay, 2001, UK	To get insight to the arrangements for menstruation hygiene management in primary schools	Tools for menstrual hygiene management for girls in primary school are inadequate. Even if in 90 % of schools sanitary towels are available, girls often have to ask the teacher for them and in more than half of the schools disposal facilities are not present in the wash-rooms or in individual toilet cubicles. In the majority of school

			without disposal facilities, the girls use the teacher toilets.
Better loos for schools	Jones & Wilson, 2007, UK	To assess the current state of toilets in Glasgow schools	The results of the children's questionnaires used in the study showed that overall the condition of toilet facilities are insufficient.
Health Assessments			
A little known problem in schoolgirls: urinary tract infection and voiding disorders in young girls	Averous, 2004, France	To discuss causes and consequences of urinary tract infection and voiding disorders among young girls	Urinary tract disorders originate early in age often due to retention habits triggered by school inadequate facilities and school policies for toilet visit. Prevention entails empowering school staff and parents to teach proper voiding; understanding pupils' needs without discriminating affected girls; and ensuring accessible, clean and private facilities.
Sanitary-epidemiological characteristics of pre-school institutions	Grebniak & Agarkova 2000, Ukraine	To assess sanitation hygiene (pinworm) in preschool establishments (kindergarten) in Donetsk, Ukraine. Different locations inside the premises were tested for the occurrence of parasite eggs.	Worm eggs were found in 2% of all restrooms, especially on door handles, on toilet tanks and partitions. 5-6% of children were reported to be infected by pinworms (<i>Enterobius vermicularis</i>) between 1994 and 1998, but the incidence could be 10 -15 times higher.
Approaches to the evaluation of the level of sanitary-epidemiological well-being of educational establishment for children and adolescents	Kuchma & Milushkina, 2004, Russian Federation	To develop an assessment methodology for sanitary and epidemiological conditions in schools	There is a significant correlation between pupils' well-being and sanitary-and-epidemiological safety. Specific WASH-related parameters were not among the ones mostly affecting children's physical development.
Factors associated with childhood constipation	Inan <i>et al.</i> , 2007, Turkey	To evaluate factors associated with constipation among school children aged 7-12 years old	Besides nutrition, sport, and family health history, never having used the school toilets is a major risk for constipation among children. Even though parental concern is high, the rate for medical consultation is low (sought in 23% of cases).
Prevalence and risk factors of helminths and intestinal protozoa infections among children from primary schools in western Tajikistan	Matthys <i>et al.</i> , 2011, Tajikistan	To assess the status on helminths and intestinal protozoa infections in Tajikistan	A third of all children were infected with helminths; a spatial heterogeneity in the prevalence was noticed; every second child classified their drinking-water sources as unimproved.
National intestinal helminth survey among schoolchildren in Tajikistan: prevalence, risk factors and perceptions.	Sherkhonov <i>et al.</i> , 2013, Tajikistan	To assess the prevalence of intestinal helminth infections among school-children, identify risk factors for infection and explore the knowledge on intestinal helminth infections	54 % of all children were infected at least with one helminth species; location (administrative districts) and hand washing practices are significant predictors for infection with certain intestinal helminth species. Pupils' awareness is significantly variable among different

district.

Demographic and parasitic infection status of schoolchildren and sanitary conditions of schools in Sanliurfa, Turkey

Ulukanligil & Seyrek, 2003, Turkey

To investigate demographic distribution of absenteeism rates and the reasons for absenteeism among children visiting schools in a shantytown, rural area and apartment area

The school in the shantytown was at most disadvantaged; in shantytown gender distribution is unequal in the school; sanitation conditions and parasite infection rate are worse compared to rural and apartment area.

5.1 Outcomes

Drinking-water

Ten articles related to drinking-water in schools were identified through the literature review. All were conducted in high income economies, six of them only in the UK. Most studies were concerned about adequate children's fluid intake at school and how to promote it. Children in Italy and UK were found dehydrated, as the level of fluid intake is significantly low (Fadda *et al.*, 2012; Kaushik *et al.*, 2007). Dehydration was associated with negative effects on the cognitive performance, especially with short-term memory, and with continence problems (Fadda *et al.*, 2012; Kaushik *et al.*, 2007).

Overall, two distinct factors have a main influence on the children's water intake. First factor is the awareness of teacher and children concerning the importance of an adequate fluid intake and the consequent school policies for drinking and toilet visits (Croghan, 2002; Haines & Rogers 2000, Hunter *et al.*, 2004; Kaushik *et al.*, 2007; Molloy *et al.*, 2008). Molloy *et al.* (2008) showed that teacher might not always be aware of children's adequate fluid intake and of its effects on health and concentration. In a significant number of schools, especially in secondary schools, pupils are eventually not allowed to visit the toilet, not either to drink in class or even to bring drinks from home with significant consequences on fluid intake levels (Croghan, 2002; Haines & Rogers, 2000; Hunter *et al.*, 2004). The positive effects of school policies encouraging water consumption were shown by Kaushik *et al.* (2007): free access to water during lessons (i.e. allowing the use of water bottles) significantly increased pupils' fluid intake, without affecting the toilet visit rate.

The latter factor affecting children's fluid intake is related to the state of the school facilities, i.e. poor conditions and low numbers of available drinking-water facilities negatively affect pupils' fluid intake at school (Brander, 2003; Croghan, 2002; Haines & Rogers 2000; Loughridge & Barratt, 2005). A significant number of schools do not provide adequate facilities for children needs, especially with respect to drinking-water promotion (Croghan, 2002; Haines & Rogers, 2000; Hunter *et al.*, 2004). The positive effect through the provision of more drinking-water facilities was shown by Muckelbauer *et al.* (2009).

However, promotion of water intake is not sufficient where drinking-water facilities are not available and availability of water facilities is not sufficient if there is not awareness and policies for promoting adequate fluid intake (Brander, 2003; Visscher *et al.*, 2010). Both key-factors emerged from the literature and should therefore be concurrently implemented for an efficient improvement. Finally, improvement interventions towards higher water consumption can also be useful to reduce the risk of obesity, as children are less prone to soft drink consumption (Loughridge & Barratt 2005; Muckelbauer *et al.*, 2009).

Hygiene Practice

Thirteen articles were found concerning the topic hygiene behaviour. All studies took place in high-income countries of the WHO European Region. The majority of studies dealt with the effects of hand washing practice at school and improvement of it, with seven articles assessing the impact of hand washing interventions in schools on incidence of common children's disease, i.e. common cold, gastroenteritis, and on absenteeism rates. Five studies out of seven reported a beneficial effect of hygiene interventions, with a significant reduction of absenteeism due to infections during and/or after the intervention (Azor-Martinez *et al.*, 2014; Gebel *et al.*, 2008; Lennell *et al.*, 2008; Nandrup-Bus, 2009; Randle *et al.*, 2013). The successful interventions consisted of: provision of an additional hand sanitizer (Azor-Martinez *et al.*, 2014; Lennell *et al.*, 2008); implementation of a targeted program in schools (Gebel *et al.*, 2008), which also improved the communication on hygiene matters between the different stakeholders involved; implementation of mandatory hand washing policy (Nandrup-Bus, 2009); and more sophisticated methods like a UV-light yo-yo to let pupils understand by themselves how to better practice hand-washing (Randle *et al.*, 2013). One study showed how comprehensive intervention, providing training and information materials together with hygiene tools, were ineffective with respect to absenteeism rate, nevertheless succeeded in efficiently improving children's hand washing behaviours (Rosen *et al.*, 2006). Studies conducted outside the region are in line with the mentioned results and underline the link between provision of hand washing materials and handwashing behaviour in schools, with beneficial effects on pupils' health (Jasper *et al.*, 2012)

According to the analyzed literature, even countries where regulation for hygiene are in place might still have challenges to implement best hygiene practice. The study of Lecky *et al.* (2007) highlighted that six European countries include hand hygiene in the school curriculum, but the details for adequate hand washing practice are not covered in any of those. Moreover, hygiene activities are not best implemented when there are no specific stimuli or awareness promotion. The implementation was in fact observed to have better acceptance when a major perceived public health threat is ongoing – e.g. a wave of influenza (Schmidt *et al.*, 2009). A study conducted in the Netherlands by Zomer *et al.* (2013a, 2013b) also showed that hygiene practice in pre-schools is still inadequate even if national guidelines are in place. Low compliance was observed for various practical situations. Factors identified as affecting the compliance are concrete impairments, as the lack of consumable provision in the facilities (especially paper towels), lack of awareness or knowledge of the national guidelines, and insufficient personal awareness of the importance of hand hygiene and the severity of associated diseases (Zomer *et al.*; 2013a and 2013b).

Water & Sanitation facilities

Thirteen articles were identified addressing water and sanitation facilities in schools. Seven of them focused especially on the student's perception of toilet and sanitation facilities in their schools. The situation emerging from the studies suggests the presence of a health risk for pupils, especially for those with wetting problems. A significant number of children – increasing with age – avoid going to the toilets at school, especially for defecating. The reasons for this are mainly related to inadequate facilities and the school policies (Barnes & Maddocks 2002; Fujiwara-Pichler *et al.*, 2006; Jones & Wilson, 2007; Lundblad *et al.*, 2005, 2007 and 2010; Vernon *et al.*, 2003). Pupils' habit of avoiding toilets is associated by scientists with higher risks of developing intestinal problems, functional bladder disturbances – like incontinence or constipation –, urinary infections (Barnes & Maddocks 2002; Croghan, 2002; Jones & Wilson, 2007; Lundblad *et al.*, 2005) and

could contribute to low fluid intake (Jones & Wilson, 2007). Additionally, Rapoport *et al.* (2012), observed a correlation between hygienic state of the school and pupils' disobedience and asocial behaviours. One study conducted outside the region also suggested that school infrastructural conditions, including WASH facilities, might have an effect on school performances (Jasper *et al.*, 2012). Heudorf and Exner (2008) thus suggest the urgent need for school high hygienic standards, together with robust and simple technology, because the same problems are affecting WASH in schools since more than a century with no significant improvement.

Concerning school facilities, pupils' comments and researchers' observation identified several problems: poor maintenance, especially of hand washing facilities, and unhygienic toilets, with dirt, unpleasant smell and often lacking hygiene consumable (toilet paper, soap, hand drying towels) (Barnes & Maddocks 2002; Croghan, 2002; Heudorf *et al.*, 2011; Jones & Wilson, 2007; Lundblad *et al.*, 2005; Rapoport *et al.*, 2012; Zulkarnaev *et al.*, 2009). The lack of toilets for disabled pupils was also highlighted by Croghan (2002). All hindering factors seem equally important for pupils, as shown by Fujiwara-Pichler *et al.* (2006): inadequate cleanliness and lack of consumables were still significantly hindering pupils' access to WASH in several schools, even after a consistent renovation of the toilet facilities, suggesting the need for a stricter legal obligation for schools. However, the results reported in the study conducted by Croghan (2002) show that cleanliness can be a challenge even when in place: when cleaning is done once per day facilities get dirty the end of the day, especially if they are overcrowded (insufficient ratio pupils-toilets). Moreover, several studies showed that the regulation in place might not be sufficient to implement WASH in schools, because a significant number of schools still do not comply with their legal obligations (Heudorf *et al.*, 2011; Ponomarenko & Cherkashin, 2009; Rapoport *et al.*, 2012; Zulkarnaev *et al.*, 2009). Compliance is especially affected by school location, with rural areas being worse, age and original purpose of the school building, type of sanitary-technical infrastructure and education process provided at school (Ponomarenko & Cherkashin, 2009; Rapoport *et al.*, 2012; Zulkarnaev *et al.*, 2009). According to Heudorf *et al.* (2011), factors increasing compliance are availability of consulting services, more frequent control visits by the responsible authorities and increase in perceived importance of hygiene practice, like an ongoing major perceived public health threat as observed also by Schmidt *et al.* (2009).

Another aspect affecting pupils' access to WASH in school is the school policy for going to the toilet. Pupils are not always allowed to go to the toilet during lessons (Croghan, 2002; Lundblad *et al.*, 2005, 2007 and 2010), even if they are affected by bladder disturbances (Lundblad *et al.*, 2007). They might avoid going to the toilet because they don't want to make public in front of the class their private toilet need when asking for permission (Lundblad *et al.*, 2010). Even in schools where pupils are allowed to go during lesson, toilets might be locked and pupils have explicitly to ask for the key to use them (Croghan, 2002; Lundblad *et al.*, 2005). Nevertheless, pupils avoid going to the toilets also because they feel insecure, as toilets are not supervised (Jones & Wilson, 2007) and bullying episodes were reported in most of the studies. This is worsened by the lack of privacy, as not all facilities are lockable (Barnes & Maddocks 2002; Jones & Wilson, 2007; Lundblad *et al.*, 2007).

Other issues emerged with respect to WASH facilities in school are about the implementation of central water supplies and centralized sewage system (Pnomarenko & Cherkashin, 2009; Rapoport *et al.*, 2012; Zulkarnaev *et al.*, 2009). Nevertheless, the study of Samwel & Gabizon (2006) describes the positive effects of the introduction of dry urine-diverting toilets, useful in areas where implementation of a central sewage system is not feasible. These facilities can be installed inside of the school buildings, improve pupils' access

to WASH in schools and could consequently improve pupils' learning performances. The authors also highlight the need for information and knowledge sharing, for recognized national and international regulations, and for good collaboration and financial resources in the communities where sanitation should be implemented.

Menstrual Hygiene Management

Three peer reviewed scientific journal article revealed by the literature research dealt with menstruation hygiene. Only the study by Jones & Finlay (2001) is specifically targeted to the topic menstrual hygiene management. The study results show that even if most primary schools might provide sanitary towels, menstrual hygiene management is still not adequate. In many schools girls have to explicitly ask an adult to be provided with a sanitary towel and disposal facilities are not present in the toilet cubicle or not even in the washrooms. Two other studies addressing in general the condition of toilet facilities in schools confirm the need of disposal facilities in primary schools (Croghan, 2002; Jones & Wilson, 2007). Two studies conducted outside the region underline the importance of ensuring privacy and providing adequate materials for the menstrual hygiene management in schools, as girls might otherwise avoid schools during menstruation (Jasper *et al.*, 2012).

Health Assessment

Seven studies investigated the health state of school children in the WHO European Region. Two of them were conducted in Tajikistan (Matthys *et al.*, 2011; Sherkonov *et al.*, 2011), two in Turkey (Inan *et al.*, 2007; Ulukanligil, 2003), one in France (Averous, 2004), one in the Russian Federation (Kuchma & Milushkina, 2004), and one in Ukraine (Grebniak & Agarkova, 2000). Two studies were on dysfunctions of the bladder or the bowel among children and their risk factors. Five studies focused on infection with intestinal parasites among school children and in three studies, at least one third of all participating children were infected. According to the studies there is a clear association between children's health and WASH in schools. The high infection incidence is associated with poor WASH in schools, due to unimproved and contaminated water source, bad sanitation conditions (with helminth contaminated surfaces) and lack of hygiene education (Grebniak & Agarkova, 2000; Matthys *et al.*, 2011; Sherkonov *et al.*, 2011). Studies conducted previously or outside the WHO European region present similar results and link the use of inadequate toilets also with symptoms like diarrhoea and vomiting or even with a higher probability to develop Hepatitis A (Jasper *et al.*, 2012). In one study, specific WASH factors were not among the factors mostly affecting children's health, but an association was not explicitly excluded (Kuchma & Milushkina, 2004). Bowel and bladder dysfunctions among children are described as a social a psychological handicap for children, leading to school failure and heavy economic burden to the society, and are a high concern for parents, even though medical consultation is not commonly sought (Averous, 2004; Inan *et al.*, 2007). The literature confirms what was proposed by the studies on WASH facilities in schools. Children's habit of keeping the bladder full for too long is a major risk factor for urinary tract disorders and constipation, and this habit often originates at school, due to inadequate facilities and policies for toilet visits that are not respecting children's needs (Averous, 2004; Inan *et al.*, 2007). Younger pupils and girls face the highest risk. Parents and school staff should be thus informed and empowered, to provide an adequate education on healthy voiding; to understand children's needs without discriminating vulnerable pupils; to facilitate access to school toilets, which should be clean, accessible and respecting privacy (Averous, 2004).

5.2 Conclusions

In the WHO European Region only little research has been carried out in the field of WASH in schools, compared to international research activities in the last 10 years. Most of the articles retrieved via the literature search are related to WASH facilities (pupils' perception and facility conditions), drinking-water (mainly on the pupil's fluid intake) and hygiene practices (hand washing and infection incidence). The educational institution mostly under focus in the analyzed literature are primary schools, less is available for pre-schools and secondary schools. Very little was found for menstrual hygiene management and health assessment in schools. Studies in high-income countries are more likely addressing questions related to usage and perception of existing infrastructure. Studies in middle- and low-income countries are more likely addressing health problems resulting from a lack of infrastructure. Except for one study on constipation, no quantitative data were found with respect to association between WASH in schools and related health problems, and only one article covered the effect of WASH on school performances.

Most of the published studies were conducted in the UK, many were conducted in Sweden, Germany and the Netherlands. Four studies conducted in the Russian Federation were also retrieved, three on the condition of water and sanitation and one on health assessment in schools. According to the results of the literature research, only few countries are focused on the topic and the literature available in English for EECCA and for low/middle-income countries seems in general very limited. Low- and middle-income countries of the WHO European Region that were included in the review are Tajikistan (low income economy), Ukraine (lower-middle economy), Romania and Turkey (upper-middle economy).

Reasons that might have led to a limitation of access to published research are the focus on literature with at least an English abstract and the time range of 10 years for the research. As WASH in school is not of high priority in many countries, it can also be assumed, that less research is carried in this field, resulting in few publications. Moreover, schools and WASH in schools might still be considered a national issue, despite the international agreements, and therefore national results might not always be published in international journals.

6. Conclusions and Recommendations

The 2010 Parma Declaration on Environment and Health has been an important step in defining regional policy goals towards better WASH conditions in schools and other childcare settings. Until today, this has led to the approval and revision of national policies, regulations and standards on WASH in schools in several countries. The Protocol is the primary policy instrument for implementing the Parma commitments. Many countries in the WHO European Region, including the Parties of the Protocol on Water and Health have prioritized WASH in schools and have established national targets towards improving WASH in schools. Several countries undertake surveillance of WASH in schools and monitor the progress of the established implementation programs. With respect to this, national surveys have been conducted, with the aim to establish a national baseline and/or to assess current problems and policy and monitoring gaps. The progress achieved until now is however still not enough to guarantee universal access to safe WASH for all pupils in the region. One-shot surveys and scientific studies contribute to outline the general discomfort felt by pupils in the WASH facilities and the related problems with hygiene practice and toilet avoidance and their negative effect on health.

Maintaining and improving WASH conditions in schools is important in terms of education and children's health but also provides economic and environmental benefits. The main issues that emerged from the analysis of evidence available for the WHO European Region are summarized in the following paragraphs.

WASH related issues and challenges are affecting pupils at school

The national surveys (chapter 4) and the literature review (chapter 5) have both shown that WASH in schools is often impaired in the countries of the WHO European Region. The issues prevail regardless the economic status of the country, even where specific regulations are in place. Many reported problems are related to improper planning, poor maintenance and cleanliness. Pupils' perception revealed a general dissatisfaction, mostly due to the lack of maintenance and cleanliness. Pupils complain especially about bad smell, the lack of consumables, the lack of privacy and supervision of the facilities and the consequent bullying episodes, problems not always acknowledged by the teachers. The dissatisfaction is not always addressed and may promote antisocial behaviours and vandalism, which would further limit the WASH access in schools. A significant number of pupils avoid using WASH facilities with consequences on health and cognitive performances. Children in schools are in fact dehydrated, a significant number of pupils report urinary infections and constipation – associated with pupils' challenges and unhealthy habits at school – and in some countries a high rate of parasitic infection was observed in relation to inadequate WASH in schools. The scientific evidence show that toilet avoidance and low fluid intake are not only fostered by insufficient and inadequate facilities, but also by lack of teachers' and children's awareness concerning the importance of WASH and the consequent school policies for drinking and toilet visits. Pupils' health might as well be affected by insufficient hygiene, as consumables are not sufficient and hygiene education, even if included in school curricula, is neither comprehensive, nor detailed.

Rural areas present particularly poor conditions with respect to water and sanitation in schools, especially in low-middle income countries. Urban areas present instead more often challenges related to overcrowding. Girls' accessibility is particularly impaired, as menstrual hygiene management is not sufficiently

handled in many countries. Access to sanitation facilities for disabled pupils is often not ensured; because insufficient facilities are present that fit the needs of disabled pupils.

The access to water for drinking and for hand washing in schools is not yet ensured

- Functional central water supply is not always available or feasible;
- Some schools lack any on-site water supply. Drinking water is transported with tanks, and a significant number of schools have to rely on unimproved water source, especially in rural areas;
- Access to drinking water is impaired by the fact that water is not always available inside the school and when it is found inside the buildings, in the majority of cases it is only available inside the toilet facilities;
- Even in schools that have a central water supply, it might be discontinuous functioning only some hours every day or some days in a week;
- In many schools water quality is incompliant with the national laws or the quality is not known;
- Hand washing facilities are often insufficient or not close to the toilets;
- In many schools there is no warm water, hindering hand washing especially in the winter season.

Hygiene management is not adequate to pupils' needs

- There is a general lack of cleanliness and bad odours are present. In the toilets that are cleaned once per day, dirt accumulates during the school days, becoming a problem especially when facilities are overcrowded and where hygiene education is not comprehensive of good hygiene practice;
- Basic consumables, like soap, toilet paper and drying devices, important for hygiene and disease prevention, are insufficient in the majority of schools;
- Disposable facilities are often missing in the toilets, impairing especially girls' menstrual hygiene management;
- Bad odours are also caused by poor ventilation, reported in several countries, which causes also the spread of mould, impairing air quality;
- Poor hygienic practice and improper behaviours are observed within the WASH facilities. Probably it is facilitated by the lack of comprehensive hygiene education in the curricula and hygiene promotion, as reported in the schools of several countries and in the literature.

Everywhere in the region, sanitation is not adequately provided nor maintained

- Sanitation is not fully ensured in some countries, especially in rural areas where central wastewater systems are not feasible. Several schools lack a functional sewage system, while some schools do not provide any sort of sanitation. Others provide unimproved sanitation and/or sanitation facilities only outside the schools, which are hardly accessible during the cold season;
- In almost all countries the lack of maintenance was reported, especially concerning toilet seats, doors, HWFs, pipes, and further hindered by the choice of poor materials for the construction and the equipment of the facilities;
- Access to sanitation facilities is also significantly impaired by the lack of privacy, as toilets are shared between boys and girls or between pupils and teachers in some countries, but also because functioning lockable facilities are missing, doors and partitions are missing (especially between urinals) or they are broken, and the sizes regulated for partitions are not adequate to children's needs;
- In some countries the room temperature in the toilets is inadequate, especially in winter and then pavements are slippery (also because of the limited cleaning);
- In many schools the number of facilities is still insufficient and there is consequently overcrowding, hindering accessibility and raising issues with cleanliness and maintenance;
- The illumination in toilets is not adequate in several countries, reported to favour improper behaviours.

Disparities affect equal access to WASH in school

- Rural-urban and regional disparities were observed in all countries where disaggregated data were available;
- In many schools facilities accessible by disabled people are still not available, even if most of the countries have addressed policies.
- Lack of privacy, lack of facilities for an adequate menstrual hygiene management, and limiting school policies affects especially girls' accessibility to WASH in schools and girls health.

The reported challenges and issues already provide important inputs, on which countries' policies should focus. The most practical suggestions are:

- Resources for on-going maintenance need to be reflected in **human resource and financial planning of the educational sector**. The emerged needs are especially of concern for **renovation programs, hygiene promotion** (with adequate instruments and education), a stronger **reporting system** to keep track of the progress, where reporting on functionality and water quality is essential, and for **enforcement mechanism** for schools found non-compliant.
- Countries and their educational authorities might carefully consider the importance of **promoting awareness and knowledge** among both teachers and pupils, to implement a comprehensive and detailed hygiene education in the school curricula, which would reduce absenteeism and foster healthy behaviours.
- An increased effort is necessary for **rural areas: specific policies with realistic, achievable targets** could improve WASH in schools in areas where central supplies are not feasible and/or natural water resources are not available.
- The issues reported by the pupils in all countries, especially concerning cleanliness, privacy and internal supervision, suggest the potential need for revision of the current requirements for the arrangement of the facilities and the school cleaning policies, to ensure adequate **access to WASH in schools, responsive of children's needs**. Increased drinking-water uptake not only depends on availability of drinking-water in schools, but also on the school policies for access of water during the classes.

Policies and targets are set, confirming the countries' commitment, but hindering factors have impeded full implementation and actual improvement of WASH in schools

The information collected in international surveys here presented show a general progress towards the goals set by the Parma Declaration. The majority of the countries (38) have established policies and/or guidelines on WASH in schools, many (15) have a coordination mechanism in place and 17 countries have already set targets or targeted programs for the implementation of WASH in schools. However, only some countries (5) have reported to have fully implemented and financed targeted programs for WASH and not all thematic areas are considered by each country, with hygiene promotion being not as prioritized as water and sanitation.

In general the involvement of the educational sector in the provision of WASH in schools is still limited, as many aspects of WASH in schools are seen like a mere infrastructure, instead of an education intervention. Often an explicit link between water, sanitation and hygiene is not present in the complex legal framework in place. Additionally, the division of roles and responsibilities is often extended to several different institutions, without a clear key-actor with overall responsibility and coordinating all the others. These shortcomings are eventually affecting the coordination mechanisms, the level of awareness and knowledge of the regulations by directly involved stakeholders and hinder schools to be compliant with the

requirements. Some exceptions are found for example in Germany and UK, where comprehensive advisory documents were developed, and in Georgia, Scotland and Wales, where schools have the opportunity to take active part in the reporting system for WASH surveillance.

Standards and regulations are commonly in place. Nevertheless, in many countries, regardless their income economy, policies still lack specific requirements recognized as essential for ensuring access to WASH in schools, as reported in the WHO guidelines (WHO, 2009)¹⁰. Often the pupils/toilet ratio specified in the regulations is not in accordance with the internationally agreed standards of the WHO guidelines. In many countries (15) hygiene education is not integrated in school curricula and even countries where regulations are in place might still have challenges to implement best hygiene practice, because minimum parameters are not provided and menstrual hygiene management and practical skills are not considered, especially in secondary schools. Enforcement mechanisms for the implementation of the policies are also inadequate and a significant number of schools is not compliant with their national obligations, with no particular improvements in years.

Current national policies do not always consider the replacements of non-functional services and/or alternatives to centralized systems. As a consequence, these countries exclude and isolate rural and regional areas with particular geographic and climatic characteristics from their policies and financing programs.

National policies are often missing the important WASH requirements related to:

- Access to hand washing facilities
- Accessibility for disabled people
- Hygiene education and hygiene promotion programs, including proper hygiene practice and menstrual hygiene management, especially in secondary schools
- Provision of consumables like soap and toilet paper
- Minimum cleaning requirements
- Alternatives to central systems for water supply and sewages are not always included in policies and national plans, which thus exclude areas where such systems are not feasible. An efficient alternative reported by Samwel & Gabizon (2006) is the introduction of internal facilities provided with dry urine-diverting toilets in schools.

The reported challenges and issues already provide important inputs, on which countries' policies should focus. The most practical suggestions are:

- Member States may wish to review the national regulations vis-à-vis the WHO guidelines and the emerged pupils' needs, and assess in how far, under consideration of national circumstances and conditions, adaptations are advisable. This may include a **review of thematic coverage of regulations related to WASH in schools** (e.g. water quality, water quantity, water facilities and access to water, hygiene promotion, toilets etc.), and respective requirements and indicators for regular surveillance.

¹⁰ Even though the WHO (2009) *Water, sanitation and hygiene standards for schools in low-cost settings* were designed to be used by schools in low- and medium-resource countries, it became clear in the drafting of this report that the proposed standards are useful recommendation as well for the school sector in high-resource countries.

- The lack of a **legally binding requirements comprehensively addressing WASH in schools** and/or effective **enforcement mechanisms** are frequent barriers to improvement. Establishing statutory systems with the aim to ensure follow-up action by responsible institutions and authorities in case of non-compliances are needed.
- A **formal coordination mechanism** has been proven as essential to inform and harmonize actions among the various stakeholders, authorities and organizations sharing responsibility in WASH in schools at the national level. Despite the development of curricula, a stronger cooperation between the Ministry responsible for Education and the other Ministries involved is needed to ensure access to WASH in schools and eventually guarantee children's right to health and to education. The countries are encouraged to revive and strengthen the existing coordination mechanism, assuring a clear distribution of responsibilities and establishing a coordinating body.
- Policies need to **take into account rural-urban and regional disparities** to ensure equal accessibility to WASH in school. Specific budgets and implementation projects are required to reduce the high disparities observed, especially but not exclusively in low-income countries. Where central supply systems are not feasible, adequate realistic decentralized alternatives need to be considered.

Policy-making won't be successful unless critical gaps in the surveillance are faced

Many countries in the WHO European Region (21) have been monitoring the coverage of WASH in schools, also thanks to the international efforts, and surveys were conducted in at least 18 countries. The majority of the countries (>35) have a surveillance system already in place and surveillance requirements are covered in dedicated regulations. Even though many countries (19) reported that the requirements include frequency of the inspections, surveillance is often not regularly conducted and sometimes it is insufficient for an appropriate assessment of the water and sanitation conditions in schools. Indicators are highly heterogeneous and the national surveillance system often does not assess important aspects, like type and functionality of the facility (improved-unimproved), water quality, hygiene, suggesting a clear gap of information. Additionally, surveillance systems may not have full coverage in the country, as reported in Republic of Moldova, where rural schools are excluded from the national statistics. Several countries present shortcomings in the regulations, which divert the government's perception of WASH accessibility in school - as emerged from the discrepancies between national statistics and survey data-, and limit establishment of an enforcement mechanism - as seen in the number of non-compliant schools and the lack of improvement in Italian schools during the last 7 years. Incomplete understanding of the actual condition of WASH in schools is also caused by the lack of disaggregated analysis between rural and urban areas and between different regions, shown to be essential for monitoring and one-shot surveys, in order to identify issues that could otherwise be overseen.

The condition of WASH in schools emerged from the literature review and the one-shot surveys noticeably reflect the observed issues in the surveillance system, that are: the limited efficiency of the indicators used; the unclear division of responsibilities among the stakeholders; the inadequate use of surveillance as tool for health or infrastructural issues only; the lack of requirements for accountability and effective sanctions for schools incompliant with the requirements; the lack of specific requirements for coverage and frequency of inspections to check on WASH in schools or their inadequate implementation; and the lack of

reporting system between the involved institutions, caused by the fact that surveillance is often not seen as a tool for implementation of the standards.

- School realities often do not match the ambitions laid out in the policies. Every country should be aware of the prevailing conditions of WASH in schools. **Routine surveillance of WASH facilities and hygiene in schools** is vital to appreciate prevailing conditions and inform about improvement needs and actions. To be beneficial, minimum **requirements** for on-going surveillance efforts (e.g. coverage, frequency, parameters to investigate) need to be established. A harmonization of the indicators for water quality could be useful, especially to enhance knowledge exchange and data comparison between different countries.
- In countries where routine surveillance is already in place, the **monitoring and inspection schemes** might be reviewed and possibly improved. In particular to include **children's perceptions and needs**, which are not reflected in many cases but may provide a better indication of the real situation. In-depth assessments are particularly useful to identify subtle limiting factors to WASH access in schools. The survey results have shown that the irregular or superficial surveillance systems lead to an underestimation of the presence and size of the problems.
- Routine surveillance is an essential tool for the implementation of the standards and regulations – in combination with an efficient enforcement mechanism –, to keep the decision-makers updated; to identify improvement needs; to coordinate improvement interventions and to target funding. It is thus important to establish a **reporting system** of surveillance results, which should be **periodically published**. Surveillance data are needed to help monitoring the progress of the on-going implementation plans, identifying the gaps, and promoting the international collaborations.
- Besides regular surveillance, also **one-shot surveys** have proved to be of extreme importance. During the development of this landscape report, many details were retrieved from such surveys, providing a comprehensive picture of the situation of WASH in school. One-shot surveys allow policy-maker to see the progresses of the implementation programs and the results of the policy removal. Such studies can also help to identify and fill gaps in the national statistics.

School involvement is a key-factor for efficient improvement of WASH in schools

Campaigns and projects involving active participation of the schools have shown prompt response and a fast improvement of the WASH facilities in those schools (chapter 5). Examples are available from different countries and comprise not only the participation of the school staff, but also of parents and pupils to raise awareness and facilitate the process of surveillance and implementation of the improvement plans. In the Republic of Moldova for example, users themselves are the essential actors in the improvement of cleanliness and consumable availability in school facilities (Chapter 4). In France, teachers reported that providing ownership to pupils through education has a positive effect on the condition of WASH facilities in schools, and suggested the national provision of materials for hygiene promotion. The need of school participation for WASH implementation is explicitly reported in the literature: increased availability of sanitation facilities alone does not lead to a significant improvement in pupils' perception as cleanliness and maintenance plays a main role too. Accordingly, improved facilities alone will not significantly promote healthy behaviours among pupils. School policies respectful of children physical needs, adequate hygiene promotion and

adequate practice all need to accomplish the infrastructural improvements. Schools and parents are also the key-actors for prevention of diseases associated to WASH, i.e. urinary tract disorders and constipation.

- The **active involvement of schools** in the implementation of WASH is essential to reach the goals. Initiatives for cooperation between responsible authorities, schools as well as parents and children have been proven successful. Better communication between schools and involved authorities or direct involvement of schools in the monitoring system could favour a more efficient organization to ensure safe and adequate WASH in schools, improving the use of hygiene education and the efficiency of surveillance;
- In schools, talking about toilets and hygiene should **no more be a taboo** and **adequate hygiene education need to be prioritized**, with comprehensive training on good hygiene practice and provision of information on menstrual hygiene management and proper voiding. Hygiene education as an integral element in the curricula at every level of education is essential to empower children with knowledge on their rights for water, sanitation and hygiene, raise pupils' awareness and responsibility with respect to WASH in schools, and promote disease prevention. Furthermore, in several countries there is a lack of prioritization of WASH by the schools community, which could be avoided promoting the **communication system** between pupils, school staff and authorities and by **hygiene promotion programs**;
- Together with facilities improvements, continuous cleanliness and maintenance of the facilities is concurrently needed for the implementation of WASH in school. The schools have a main role in ensuring such aspects, also in terms of supervision and surveillance. A clear **distribution of responsibilities** and **adequate tools for non-expert school staff**, like informative materials, monitoring tools and trainings, are thus necessary to avoid non-compliance.

Policy-making need to be supported by scientific research, especially on neglected topics

The scientific research in the WHO European Region is limited compared to other regions. Evidence data is not sufficient with respect to low- and upper-middle income countries, due to lack of prioritization of WASH in schools or due to the lack of international dialogue about such themes. Moreover, scientific literature and monitoring data, still often neglect important WASH related topics:

- Menstrual hygiene management
 - Hygiene education and teachers' knowledge
 - Statistical significance for the association between inadequate WASH accessibility and health conditions, like urinary tract infection or incontinence.
- **Scientific literature addressing WASH in schools** is essential to raise the importance of WASH in schools and further attention is required on such topics, especially in EECCA and low-middle income countries. Scientific work needs the **support** of the countries and is particularly useful at the **international level**, to foster a common dialogue on WASH in schools and the related political work. Particularly of relevance would be evidence on the importance of menstrual hygiene management and evidence for statistical significance of the association between urinary problems and poor accessibility to WASH in schools.

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Annex

Annex 1: Targets set by Parties related to WASH in schools

Country	Targets and indicators
Armenia <i>Not Party: draft targets, not adopted</i>	<p>Target area II: Reduction of the scale of outbreaks and incidents of water-related diseases</p> <p><u>Target:</u> Maintain the vaccination of children against rotavirus</p> <p><u>Target date and indicator:</u> At least 90 % annual coverage</p> <p>Target area III: Access to drinking-water</p> <p><u>Target:</u> Improve access to safe drinking-water in educational facilities (facilities include kindergarten through senior school and boarding facilities)</p> <p><u>Target date and indicator:</u> In 20 facilities by 2016; in a further 30 by 2020</p> <p><u>Related measures:</u> Development and implementation of programmes to improve drinking-water supplies in educational facilities by 2020</p> <p>Target area IV: Access to sanitation</p> <p><u>Target:</u> Improve sanitation in educational facilities</p> <p><u>Target date and indicator:</u> Construction of new sanitation systems, including Ecosan toilets: 10 by 2018; and a further 25 by 2025</p> <p><u>Related measures:</u> Development and implementation of programs to improve sanitation in educational facilities by 2010</p>
Azerbaijan <i>Party: targets drafted in 2016, not adopted</i>	<p>Target area I: Quality of the drinking-water supplied</p> <p><u>Target:</u> Achieve appropriate quality drinking-water in schools for main chemical and microbiological parameters.</p> <p><u>Target date and indicator:</u> 80% of schools by 2020; 100% schools by 2035;</p> <p>Target area II: Reduction of the scale of outbreaks and incidents of water-related diseases</p> <p><u>Target:</u> Develop a national strategy for prevention and control of soil-transmitted helminthiasis</p> <p><u>Target date:</u> 2016-2020</p> <p><u>Target:</u> Vaccination of children against rotavirus and other vaccine preventable diseases</p> <p><u>Target date and indicator:</u> 90 % of children of appropriate age</p> <p>Target area III: Access to drinking-water</p> <p><u>Target:</u> Provision of improved water sources in pre-schools and schools</p> <p><u>Target date and indicator:</u> 85: for 2016-2020; 100% by 2035</p> <p>Target area IV: Access to sanitation</p> <p><u>Target:</u> Provide children with access to improved sanitation and conditions for hand washing with soap in pre-schools and schools</p> <p><u>Target date and indicator:</u> 80% by 2020; 100% by 2035:</p>
Belarus <i>Party: targets adopted</i>	<p>Target area II: Reduction of the scale of outbreaks and incidents of water-related diseases</p> <p><u>Target 1:</u> Reduction morbidity by hepatitis A from 6.9 for 100 thousand of population in</p>

<p><i>ed</i></p>	<p>2005 to 5 for 100 thousand of population in 2010</p> <p><u>Activities:</u> Introduction of immunization against hepatitis A among contingents of high risk focused in pre-school and general educational institutions</p> <p><u>Target date:</u> 2007-2010</p> <p><u>Executors:</u> The regional executive bodies, the Minsk City Executive Body</p> <p><u>Financial sources:</u> Local budgets</p> <p><u>Target 2:</u> Prevention of morbidity by acute enteric infections related to the drinking-water in the educational institutions</p> <p><u>Activities:</u> Providing of the bottled drinking-water for educational institutions</p> <p><u>Target date:</u> 2007-2009</p> <p><u>Executors:</u> The regional executive bodies</p> <p><u>Financial sources:</u> Local budgets</p>
<p>Germany</p> <p><i>Party: targets adopted</i></p>	<p>Additional national target area: Improved national communication and education on</p> <p><u>Target:</u> To improve Federal communication and education of the general public on the topics of drinking-water, bathing and swimming, with particular consideration for children's health</p> <p><u>Activities 3:</u> Children's book and quiz: The aim is to educate children of various age groups in water-related issues in a playful manner. An interactive water quiz with computerised animations on the topics of drinking-water, open waters, swimming pools and open-air swimming pools will be devised for the over-12s. An illustrated children's book for the under-12s will focus on drinking-water and bathing waters.</p> <p><u>Target date:</u> 31 December 2013</p> <p><u>Indicator:</u> Publication of the above mentioned products</p>
<p>Kyrgyzstan</p> <p><i>Not Party: targets adopted</i></p>	<p>Target area II: Reduction of the scale of outbreaks and incidents of water-related diseases</p> <p>Key national problem of this target area is the maintenance of high level of acute intestinal infections cases, particularly among children in rural areas of the southern regions of Kyrgyzstan. These negative trends are due to limited access of the population to safe drinking-water and sanitation; degradation and low efficiency of water supply and sanitation systems; poor quality of water in water supply sources for domestic and recreational purposes; low awareness of population about the need of personal and public hygiene rules observance.</p> <p><u>Target 2.2:</u> To cover with the monitoring of water-related diseases program in a pilot region at least 70 % of children by 2015 and at least 90 % of children by 2020.</p> <p><u>Responsible organisation:</u> Ministry of Health</p> <p>Target area III: Access to drinking-water</p> <p><u>Target 3.2:</u> By 2015 to make an assessment of the status and required investments for the improvement of water supply systems in 100 % of schools and preschool institutions, and on this basis to develop a program of rehabilitation and development of these systems until 2020, provided with sustainable funding sources.</p> <p><u>Responsible organisations:</u> Ministry of Economy, Ministry of Finance, Ministry of Education and Science, local authority, State Inspectorate for Sanitary, Veterinary and Phytosanitary Safety, Department of Water Supply and Sanitation, ARIS, NGOs</p> <p>Target area IV: Access to sanitation</p> <p><u>Target 4.2:</u> To provide by 2015 not less than 80 % of schools and at least 90 % of pre-school institutions with improved sanitation facilities, including new buildings in Bishkek (not less than 70 %). By 2020 to provide at least 90 % of schools and 100 % of pre-school institutions with these facilities.</p> <p><u>Responsible organisations:</u> Ministry of Economy, Ministry of Finance, Ministry of Education and Science, local authorities of Bishkek and Osh, local authorities of small towns</p>

<p>Republic of Moldova</p> <p><i>Party: targets adopted</i></p>	<p>Target area I: Quality of the drinking-water supplied</p> <p><u>Target 3:</u> Achieve compliance with all the existing chemical and microbiological drinking-water quality standards in schools</p> <p><u>Target dates:</u> 2015 - in about 95 % of all schools; 2020 - in about 100 % of all schools</p> <p><u>Responsible:</u> Local authorities, operators of water supply systems, Ministry of Environment</p> <p><u>Measures and activities 5:</u> Installation of water filtration systems in 300 schools (2011-2015)</p> <p><u>Responsible:</u> Local authorities, Ministry of Education, operators of the 'Apa-Canal' enterprises</p> <p>Target Area III: Access to drinking-water</p> <p><u>Target 2:</u> Increase the access of children in schools and pre-school institutions to improved water supply sources</p> <p><u>Target dates:</u> 2015 -- in 95 % of schools and pre-school institutions; 2020 - in 100 % of schools and pre-school institutions</p> <p><u>Responsible:</u> Local authorities, operators of water supply systems, Ministry of Education</p> <p>Target Area IV: Access to Sanitation</p> <p><u>Target 2:</u> Provide access of children in schools and pre-school institutions to improved sanitation systems</p> <p><u>Target dates:</u> 2015 - about 90 % of all schools and pre-school institutions; 2020 - about 100 % of all schools and pre-school institutions</p> <p><u>Responsible:</u> Local authorities, operators of the 'Apa-Canal' enterprises, Ministry of Education</p> <p><u>Measures and activities 2:</u> Implement projects to improve the sanitary conditions in schools and pre-school institutions and achieve 100 % access to improved sanitation systems (2012-2020)</p> <p><u>Responsible:</u> Local authorities, Ministry of Environment, operators of the 'Apa-Canal' enterprises</p>
<p>Serbia</p> <p><i>Party: targets adopted</i></p>	<p>Target area III: Access to drinking-water</p> <p><u>Target:</u> Estimate investment required for the improvement of water supply in schools and preschools facilities, supplied from individual wells or connected to rural water supply system</p> <p><u>Target date and indicator:</u> 2016, investment estimation conducted</p> <p><u>Responsible:</u> Local self- governments, Ministry of education, science and technological development</p> <p>Area IV: Access to sanitation</p> <p><u>Target:</u> Estimate investment required to improve access to sanitary equipment, proper waste water disposal and regular emptying of septic tanks in schools and preschools.</p> <p><u>Target date and indicator:</u> 2016, investment estimation conducted</p> <p><u>Target:</u> Develop a plan for the improvement of sanitation in schools and preschools.</p> <p><u>Target date and indicator:</u> 2017, improvement plan developed</p> <p><u>Target:</u> Improve sanitation in schools and preschools</p> <p><u>Target date and indicators:</u> Number of schools and preschool with improved sanitation. 2015-2020 and 2021-2025 establishing and intensive enforcement; 2026-2035- moderate intensity enforcement</p> <p><u>Responsible (for above 3 targets):</u> Local self- governments, Ministry of education, sci-</p>

ence and technological development

Target: Raise awareness of teachers, school staff and pupils on hygiene of the sanitation facilities in schools

Target date and indicator: By 2016 - review of curricula and textbooks; education planning for educators, teachers and school administration; education planning for children, students and parents; 2016-2017 - realization of plans

Responsible: Ministry of education, science and technological development

Area VI: Application of recognized good practices

Target: Improve WASH survey in schools introducing new methodology

Target date and indicator: 2016, new methodology issued

Responsible: Ministry of Health, Institute of Public Health of Serbia with the network of regional IPHs

Target: Raise awareness on adequate water supply and sanitation in schools, especially in those with individual wells.

Target date and indicator: Percentage of schools conducting education, ongoing basis

Responsible: Ministry of Health, Institute of Public Health of Serbia with the network of regional IPHs; Ministry of education, science and technological development

Tajikistan

Not Party: draft targets, not adopted

Area III: Access to drinking-water

Target: To develop a program for rehabilitation of the water supply and sanitation in secondary schools, child care institutions and medical centers by 2015

Indicators: The program of reconstruction of water supply and sanitation systems in secondary schools, child care institutions and medical centers

Responsible: SUE HCS, Ministry of Education, Hukumats of cities and regions

Area IV: Access to sanitation

Target: To provide with at least 80 % of schools and at least 90 % of pre-schools with improved sanitation facilities by 2020

Indicator: To provide by 2020 schools and pre-school institutions with improved sanitation facilities

Responsible: Hukumats of cities and regions

Ukraine

Party: targets adopted

Target area I: Quality of the drinking-water supplied

Target: Ensuring children in preschool and secondary schools with quality drinking-water

Indicator: Percentage of preschool and secondary schools with access to safe drinking-water

Target dates: Intermediate: 2015 - in cities and towns 15 %, in villages 10 %; final: 2020 - in cities and towns 25 %, in villages 20 %

Responsible: Local authorities, State Sanitary and Epidemiological Service, Ministry of Education, Youth and Sports, Ministry of Regional Development, Construction and Housing and Communal Services

Target area IV: Access to sanitation

Target: Providing improved sanitation children in preschool and secondary education (improved sanitation and connection of pre-school and secondary schools to sanitation systems):

Indicator: Number of preschool and secondary schools in canalized dug and connected to sewerage systems

Target dates: Intermediate: 2015- in cities and towns 15 %, in villages 5 %; Final: 2020 - in cities and towns 25 %, in villages 15 %

Responsible: In cities and towns: the local authorities, the State Sanitary and Epidemiological Service, Ministry of Education, Youth and Sports, Ministry of Regional Development, Construction and Housing and Communal Services; in villages: State Water Resources Agency

Annex 2: Water Sanitation and Hygiene in Schools surveillance in countries within the area of responsibility of the WHO Regional Office for Europe

Representatives of the countries taking part in the meeting on advancing water, sanitation and hygiene in schools (Bonn – September 2014) for the WHO Region Europe compiled a small questionnaire about the measures formalized by their government to regulate, control and promote WASH in Schools, including the measures for coordinating all the related actions.

Summary

	Formal mechanism to coordinate the work of different institutions	Regulation for routine surveillance requirements	National surveys	Targeted programmes to improve WASH in schools
Albania	✓	✓ ¹	✓	✓
Armenia	X	✓	X	●
Azerbaijan	✓	✓	✓	✓
Bosnia and Herzegovina	✓	✓	✓	●*
Croatia	X	X	✓	✓
Czech Republic	✓	✓	X	✓
Estonia	✓	✓	✓	X ²
Georgia	X	✓ ³	✓	✓
Hungary	X	✓	✓	✓
Kazakhstan	●	✓	-	✓
Kyrgyzstan	●	●	✓	✓
Latvia	✓	✓	✓	X
Lithuania	✓	✓	✓	✓
Montenegro	X	✓	X	X
Republic of Moldova	✓	✓	✓	✓
Russian Federation	✓	✓	✓	✓
Serbia	✓	✓	✓	✓
TFYR Macedonia	✓	✓	✓	✓
Turkmenistan	✓	✓	✓	✓
Ukraine	✓	✓	✓	✓

● Under approval by the authorities or still to be implemented

- no information retrieved

*the programs focus only on water consumption

¹ Only four schools were included

² Funding is available for single initiatives

³ State Sanitary Supervision Centres mentioned in the Decree were abolished in 2007

Annex 3: Standardized methodology for collection of data on WASH in schools

a) The considered surveys produced in collaboration with United Nations Children’s Fund (for example the surveys from Georgia, Kyrgyzstan and Serbia) were developed following a specific methodology for data collection¹¹. Specifically, the methodology of global evaluation and monitoring of water, sanitation and hygiene conditions was used, which includes three main tools with standardized form:

- Questionnaire for face to face interviews with School Principals/administrators
- Form for infrastructure and pupils’ hygiene behaviour observation
- Questionnaires for focus group discussions composed by the pupils and the teachers.

In Georgia, the survey indicators were then discussed with the experts of the national ministries involved (e.g. Ministry of Education; Ministry of Labour, Health and Social Affairs).

	Variations in the survey conducted in Kyrgyzstan	Variations in the survey conducted in Serbia
Questionnaire for face to face interviews with School Principals/administrators	Plus: members of national and local government, experts working in local and international NGOs and aid agencies and teachers	(No variation)
Form for infrastructure and pupils’ hygiene behaviour observation	(No variation)	(No variation)
Questionnaires for focus group discussions composed by the pupils and the teachers	Only students were involved, primarily secondary-school-aged girls, but also boys, and children from Grades 3 th and 4 th .	Students in grades from 6 th to 8 th were involved

b) In order to evaluate progress of implementation of the Parma commitments , the WHO supported assessment methodology is aimed at collecting the same information as the UNICEF methodology and therefore does not significantly differ¹². The agreed WHO methodology for assessing sanitary facilities and hygiene practices in schools includes the following tools:

- Questionnaire for the school director with core and optional questions;
- Inspection of sanitation facilities by survey technicians;
- Questionnaire for the schoolchildren about hand washing facilities.

Sanitation and hygienic practices is evaluated using the following indicators: functionality, adequate operation and maintenance, accessibility, safety, privacy, and acceptance/perception.

Data are analyzed stratified by school location (urban vs. rural area), gender and/or age category.

¹¹ More information from UNICEF on WASH in schools monitoring can be retrieved from: <http://www.sanitationmonitoringtoolkit.com/sanitation-monitoring-toolkit/monitoring-wash-in-schools>
¹² More information about the monitoring program agreed during the Ministerial Conference to track the commitment implementation can be retrieved from: <http://www.euro.who.int/en/countries/germany/news/news/2011/08/monitoring-the-implementation-of-parma-conference-commitments-organizational-and-methodological-issues.-bonn,-germany,-29-30-september-2011>