



Small scale water supplies and sanitation: status quo and challenges

Enkhee Shinee & Oliver Schmoll

Yerevan, Armenia, 16 December 2015



**World Health
Organization**

REGIONAL OFFICE FOR
Europe



**Organisation
mondiale de la Santé**

BUREAU RÉGIONAL DE L'
Europe



Weltgesundheitsorganisation

REGIONALBÜRO FÜR
Europa



**Всемирная организация
здравоохранения**

Европейское региональное бюро

Why focusing on small supplies?

- They are **many**
- **Backbone** of water supply in rural areas and small towns
- Need for **decentralised solutions** for technical, hygiene, and economic reasons
- The challenges faced by small-scale systems are a **recognized policy concern** across the European Region

Country	Rural
Armenia	37%
Azerbaijan	45%
Belarus	23%
Georgia	46%
Kazakhstan	47%
Kyrgyzstan	64%
Republic of Moldova	55%
Russian Federation	26%
Tajikistan	73%
Turkmenistan	50%
Ukraine	30%
Uzbekistan	64%

Source: WHO and UNICEF 2015

Why focusing on small supplies?

- About 264 million people or **one third live in rural areas** (2015)
- About 207 million people or **one quarter are supplied by small systems** (2011)
- About 63 million or **7% of the population** are served by **very small** non-piped water supplies (2011)

What is a “small” water supply”?

- **Size of the supply:**
 - Population served or volume of water supplied
 - Typically categorised by regulations
- **Organisational set-up:**
 - Community managed
 - Publicly or municipality managed
 - Privately owned and operated
- **Technical specification:**
 - Centralised vs. non-centralised



Why are we concerned?

Regulations

- Lack of knowledge and sense of responsibility lead to **limited policy attention**
- **Particularities** of small systems often not sufficiently addressed in national regulation
- **Insufficient regulation**

Insufficient regulation

Status quo:

- 87% have legal and regulatory requirements for **small public supplies**
- 26% have legal requirements for both **small public and individual supplies**
- 44% have **no requirements** for small supplies <50 persons
- 13% have no requirements for **individual small supplies**

Why are we concerned?

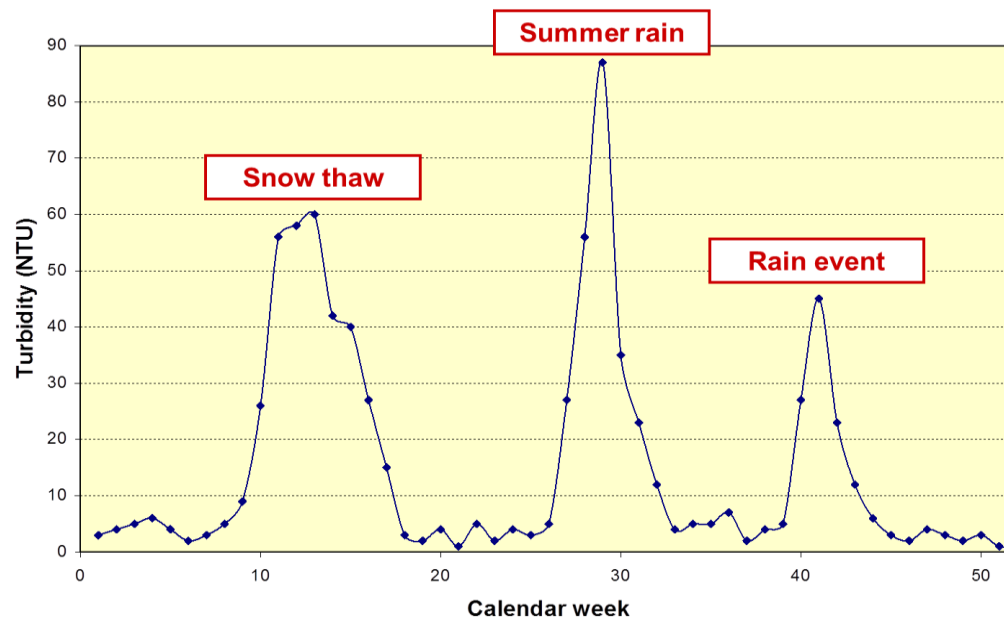
Surveillance

- Limited **disease surveillance** in small communities:
 - Largely under-reported
 - Ad-hoc versus systematic
- Ensuring ongoing **surveillance of water quality and reporting** is a challenge
 - *De jure*: regulatory requirements for surveillance of small-scale systems are not established
 - *De facto*: regulatory requirements are in place but not or poorly enforced due to lack of human, lab, financial and/or logistic resources

Lack of surveillance

Irregular testing

- May miss critical events and does not provide valid surveillance findings (seasons)
- Fail to identify shortcomings and inform improvement



Why are we concerned?

Lack of reporting

- **Reporting** on drinking-water quality for small-scale systems:
 - Required for 78%
 - Not obligatory for 22%
- Reporting does not always reach national level: data sit at local level
- **Poor overview** picture available in many countries

Why are we concerned?

Limited personnel and financial resources

- Involvement of untrained or undertrained and part-time **staff** leading to inaccurate **perception** of water-related health risks
- Lack of access to **support networks and materials** due to geographical spread and remoteness
- Small systems have **relatively higher costs** for maintenance and operation per consumer
- **Lack of sustainable financial resources** to maintain, repair or upgrade system infrastructure

Why are we concerned?

Risk factors

- Small systems are more prone to anticipated **effects of climate change** (e.g. extreme weather events)
- **Inadequate local practices** often pose a risk to public health

Critical pollution risk factors

- Inadequate **local sanitation** practices



Generally **lower compliance** in smaller systems

- High vulnerability to **heavy rainfall** and **thaw**



Common consequences

- Poor management and operation
- Infrastructure breakdown
- Unsafe and non-sustainable services
- **Poor compliance**
- Increased health risks

Poor compliance (examples)

- **Small systems in rural Georgia (2011):**
 - Compliance rates at 30-40% for faecal indicators
- **Private supplies in Scotland (2011):**
 - Supplies serving <50 people: **22% non-compliance** rate for *E. coli*
 - Supplies serving >500 people: 1% non-compliance rate for *E. coli*
- **Small public supplies in European Union (2008-2010):**
 - Large systems: compliance average 99% in 23 countries
 - Small systems: compliance average 99% in **4 countries**

Is it worth to improve?

- Positive **benefit-cost ratio** for reduction of acute diarrhoeal illness:

INVESTMENT:

- Costs of legislation
- Technical interventions



BENEFITS:

- Direct cost of illness (e.g. health care)
- Indirect cost of illness (e.g. loss of work and schooling)

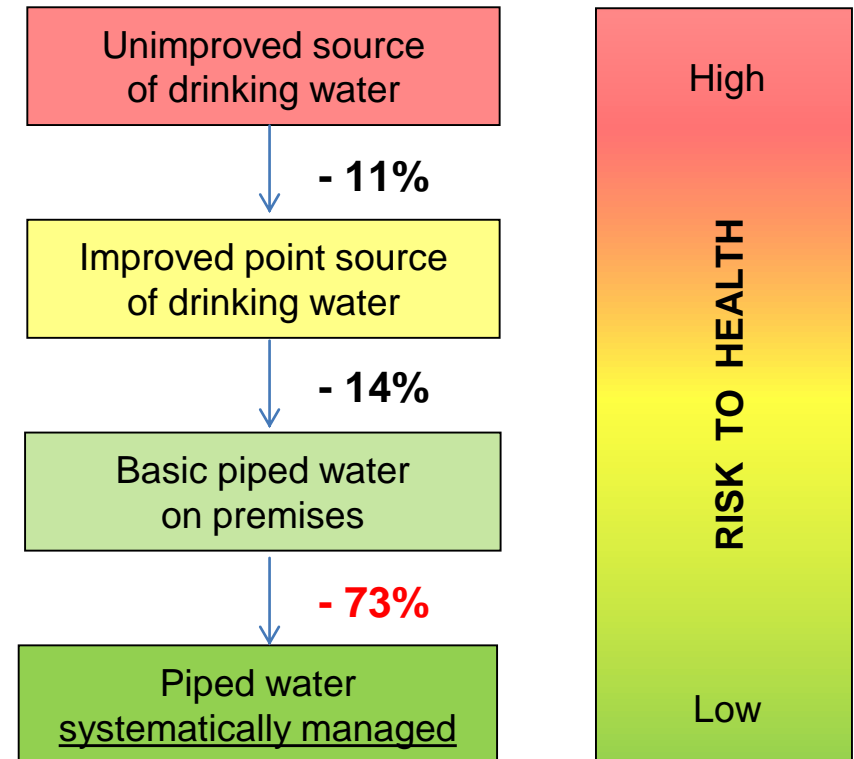
Subregion	Benefit-cost-ratio (mean value)
Eur-A	3
Eur-B	21
Eur-C	4

Source: Hunter et al 2012

Health gains from WSPs

Supply transitions and associated reduction in diarrhoea risk

- Evidence on **health gains**
- Evidence from **Iceland**:
 - Significant decrease in diarrhea incidence
 - Population under WSP is 14% less likely to develop clinical cases of diarrhea



Other benefits

- Building **healthy and resilient communities**:
 - Sustainable livelihoods
 - Reduction of poverty
 - Economic development
 - Gender equality

Increased policy recognition in Europe

- **Unites** all countries across region
- Recognised by **European Commission** in the 7th Environmental Action Programme
- **Priority area** for target setting under the Protocol
- **Explicit targets** in various countries

Thank you
