



Principles of risk-based standard setting and monitoring

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**Всемирная организация
здравоохранения**

Европейское региональное бюро

WHO Guidelines for Drinking-water Quality

- International point of reference for regulators
- Public health benchmark for delivery of safe drinking-water
- Rigorous science-based health assessments of agents in drinking-water
- Guideline values (GVs)
- Evaluations & fact sheets:
 - 50*plus* pathogens and microbiological indicators
 - 135*plus* chemical and physical parameters



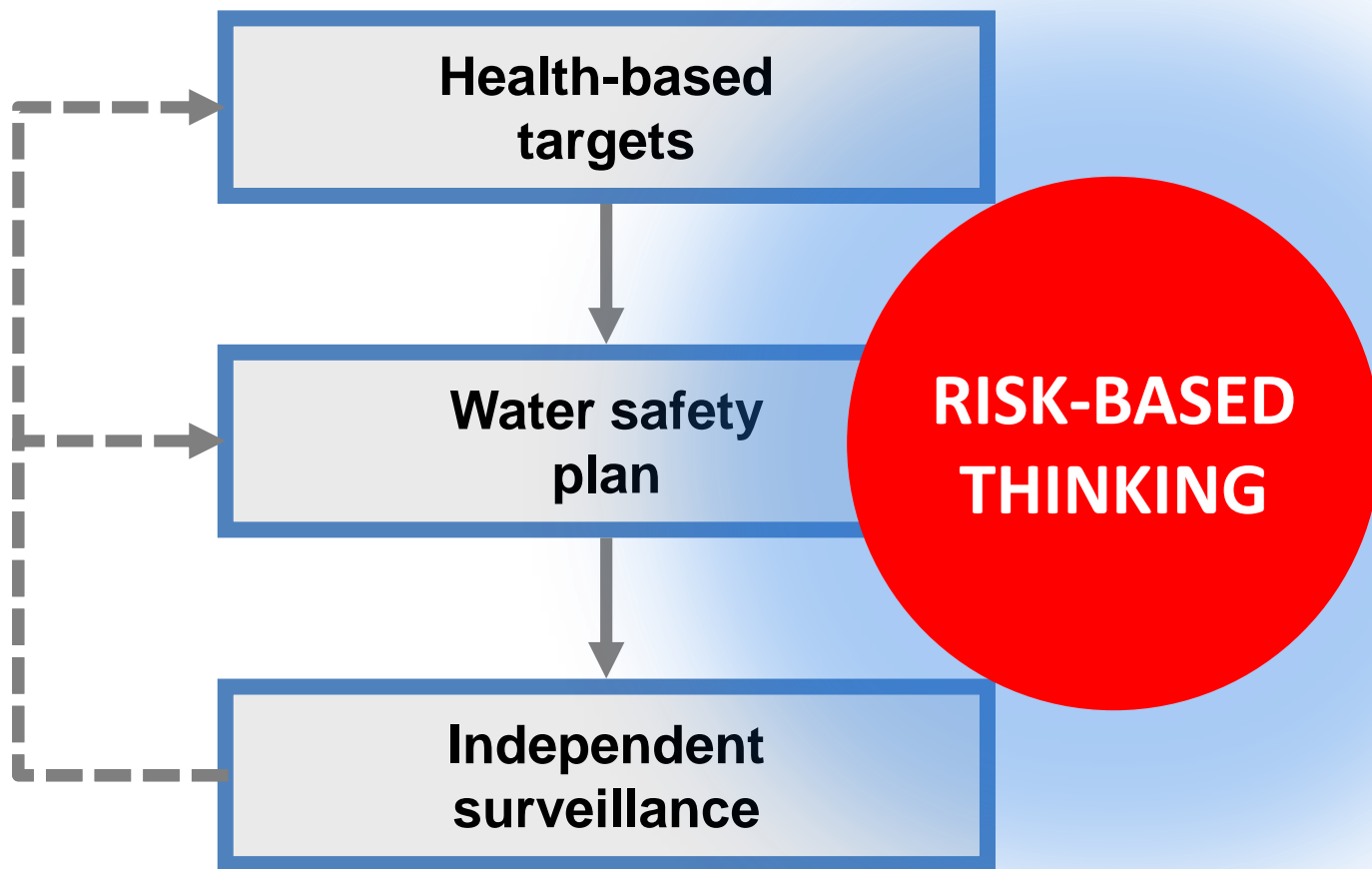
Guidelines & Directive

- DWD Article 11: *“At least every five years the Com. shall review Annex I in the light of **scientific and technical progress** and shall make proposals for amendments”.*
- DWD Recital 16: *“The standards in Annex I are generally based on the WHO Guidelines for Drinking-water Quality.”*
- Current Directive (1998) based on 2nd edition (1993-1996)
- Several evaluations underpinning GVs were prepared even before – based on scientific evidence at the time
- Addendum (2016) with 5th edition in preparation

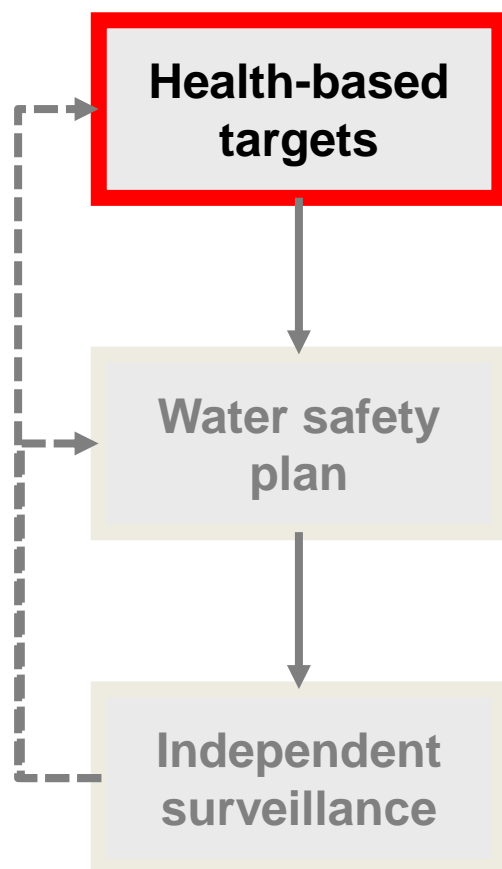
Major shift with 3rd edition

- Over-reliance on (microbiological) compliance testing of end-product was considered as *“too little to late”*
- Need for holistic and proactive approach to systematically managing risks in drinking-water from catchment to tap
- Shift in thinking reflected in *“Framework for Safe Drinking Water”* introduced in 3rd edition of the Guidelines (2004)

WHO Framework for Safe Drinking-water



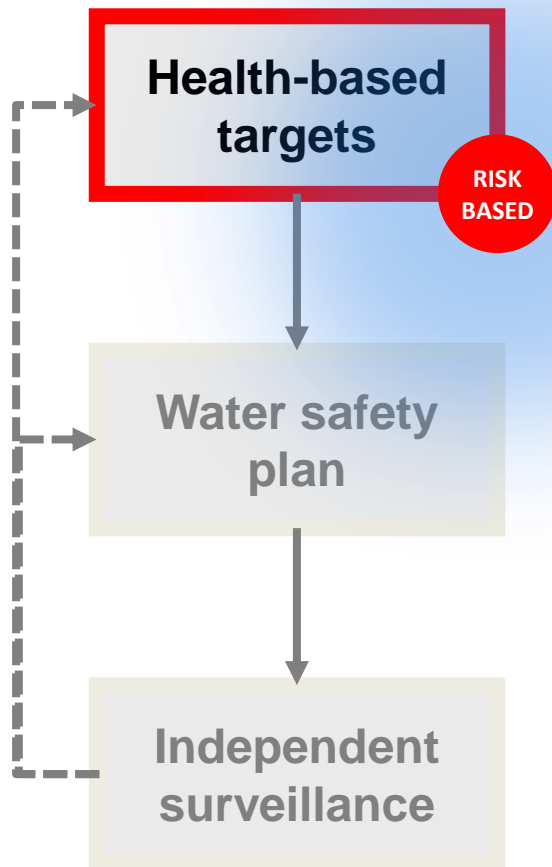
Health-based targets



- Targets based on public health protection and disease prevention
- Different types for different purposes:
 - Water quality targets (WQT)
 - Technology targets
 - Performance targets
 - Health outcome targets

Health-based targets

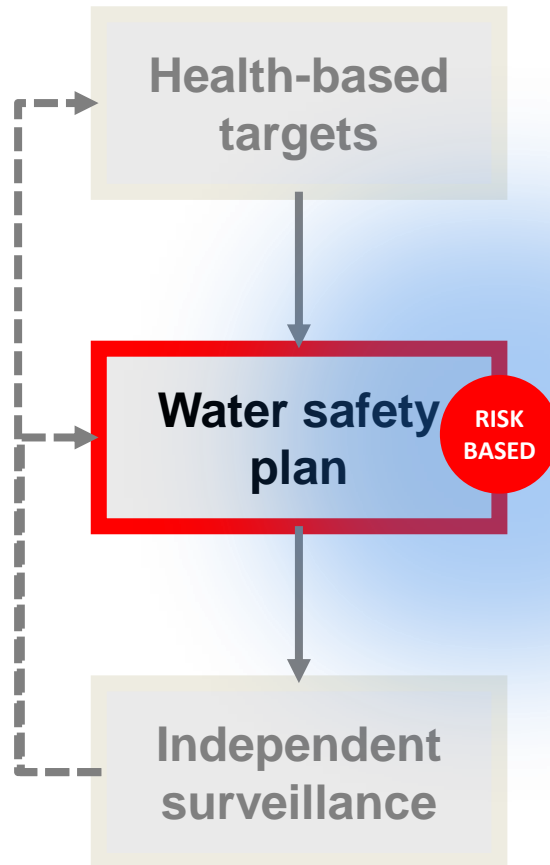
Risk-based principles



- *Adaptation* to (supra)national context
- *Parameter coverage* to reflect those of common concern in territory in terms of occurrence and relevance to public health
- *Standard values* to reflect desired level of health protection and capacities to enforce them
- Make provisions to allow for *sensible decisions* (risk communication)

Water safety plan

Risk-based principles

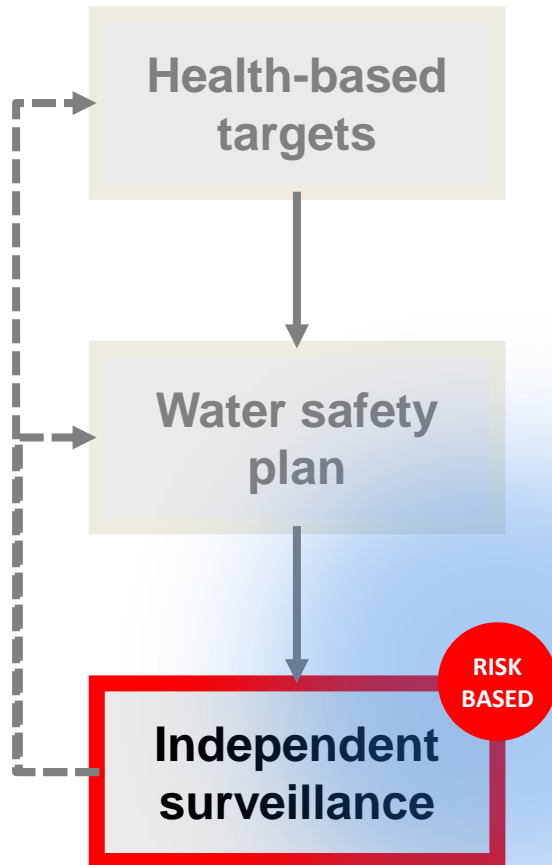


- *Evaluation of risks in local supply context from cat2tap*
- Focus on *locally relevant risks* (hazards may not covered by WQTs)
- Diligent management of *control measures*
- Confirmation of their *validity as “barriers”*
- Tight *operational monitoring* (need of indicator parameters)
- Good understanding & monitoring of *source water quality*, including variations

RISK MATRIX	Severity				
	High (Score 1)	Med (Score 2)	Medium (Score 3)	Minor (Score 4)	Catastrophic (Score 5)
Asset condition (Score 1)	5	10	20	40	50
Leak (Score 2)	4	8	16	32	44
Contamination (Score 3)	3	6	12	24	40
Utility (Score 4)	2	4	8	16	30
Water safety (Score 5)	1	2	4	8	10

Independent surveillance

Risk-based principles



- *Audit* of WSPs to confirm that risks are well managed
- *Verification (compliance) monitoring* to confirm that WQT are met
- Focus attention on *supplies with high risks* and/or *weak WSPs*
- Focus on *parameters of local concern*
- Focus on *critical times/events*
- *Relax requirements* for locally irrelevant parameters

Do you remember?

Drinking Water Seminar

Oct. 2003

Position paper on Risk Approach for Drinking water

RISK BASED APPROACHES:

THE NEXT STEP IN THE EVOLUTION OF THE DRINKING WATER DIRECTIVE

*Prepared by (alphabetical order): Michel Gibert, Guy Howard, Adriana Hulsmann,
Gertjan Medema, Oliver Schmoll, Frans Schulting and Riku Vahala*

BACKGROUND

Risk management approaches in drinking water

Historically, end-product testing has been one of the key elements within legislation for managing the delivery of safe drinking water, and ostensibly for the protection of public health. This is reflected by both the Drinking Water Directive 98/83/EC (DWD) and its predecessor DWD 80/778 EEC, and many of the national drinking water legislations within Europe that primary rely on compliance monitoring against numeric water quality standards based on samples taken at specified minimum frequencies. Over recent decades, this approach has given clear guidance and a great impetus to the development of the water supply sector in European countries that has resulted in a high level of drinking water quality and supply infrastructure. From the consumer's perception this approach has successfully guaranteed high confidence in drinking water safety.

Background papers

- To support update of Annex I with a risk-based lens
- To support decisions on the possible removal of parameters
- To support decisions on the possible uptake of new parameters
- To advice on up-to-date health-based GVs to support standard setting in DWD context
- To advise on how to strengthen risk-based approaches to microbiological hazards

Thank you



Source: Rod Shaw

Microbiological risks

Questions for discussion 1/2

- *Risk assessment is key to ensuring safe water supply.* Is the proposed sanitary-survey-based risk assessment approach feasible and adequate in the EU context?
- *Operational monitoring is a core element of the WSP approach.* Is there a need to translate the general requirement of DWD Article 7.1 into more explicit requirements for operational monitoring in the DWD?

Microbiological risks

Questions for discussion 2/2

- Should the DWD focus on *Legionella pneumophila* or *Legionella sp.*?
- Is there added value in monitoring enterococci and/or total coliforms in addition to *E. coli*?
- Should the role of microbial parameters be specified in the DWD to take into account different requirements for operational and verification monitoring?

Chemical parameters

Questions for discussion

- Based on the data received is it appropriate to remove the parameters that fall into the “low priority for inclusion” category?
- Should existing DWD standards be updated in the light of new data used to update WHO guideline values where this is indicated?
- Which new parameters should be included based on what is proposed but remembering that standard values will be needed?
- Should the parameters in the DWD be grouped to take into account different requirements for monitoring and control?