

# **Challenges of Rural Water Supply, Sheltozero, Karelia**

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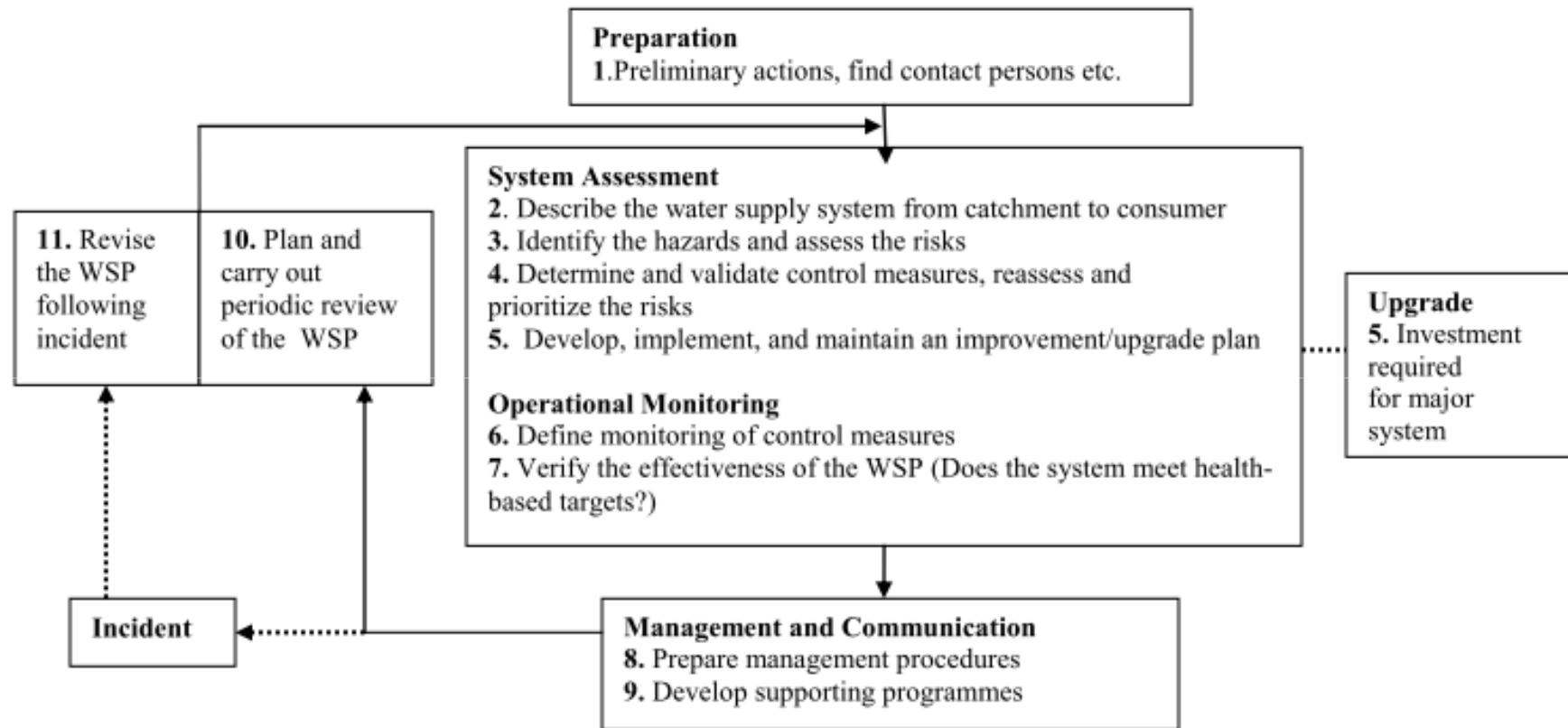
# Goal

- find out objects of development for the water supply in Sheltozero
- find cost-effective solutions for the arisen problems to ensure safe drinking water

## How to get to the goal ?

- review water supply system as a long chain from catchment to consumer
- carefully apply risk assessment for each step

# Water Safety Plan – Towards the goal



# Examples of risks, hazards and control measures

**Example/tool 3.8: Output of hazard assessment and risk assessment using semi-quantitative approach**

Process step	Hazardous event (source of hazard)	Hazard type	Likelihood	Severity	Score	Risk rating (before consideration of controls)	Basis
Storage tank	Unroofed reservoir allows birds to congregate and defecate in treated water	Microbial	2	5	10	High	Potential illness from pathogens such as <i>Salmonella</i> and <i>Campylobacter</i>
Treatment	No back-up power supply	Microbial and chemical	2	5	10	High	Potential loss of treatment and pumps/pressure
Distribution	Leaks on trunk main and distribution system	Microbial	5	3	15	High	Leaks are a potential source of microbial pathogens and contribute to high % of unaccounted for water

**Example/tool 4.5: Critical limits and actions relating to microbial hazards**

Hazards and hazardous events	Examples of control measures	Critical limit target	Critical limit trigger for action
Microbial hazards from contamination of a service reservoir	Ensure inspection covers remain in place Ensure ventilators and cable ducts are secured against vermin entry	Inspection covers locked in place and vermin-proofing intact	Inspection covers not in place or unlocked or damage to vermin-proofing

**Example/tool 4.12: Risk prioritization and reassessment**

Hazard	Hazardous event (source of hazard)	Likelihood	Severity	Score	Risk rating (see table 3.6)	Example control measure	Validation of control measure	Reassessment of risk post-control
Microbial	Inadequate disinfection method	3	4	12	High	Improve disinfection method (longer-term). Minimizing ingress of contamination to system and lengthening reservoir detention times (short-term). Fitting alarms triggered by low disinfectant level.	Alarms effective and demonstration of consistent removal of indicator organisms under range of operating conditions.	Low with appropriate operational monitoring.

Source: WHO, 2009, Water Safety Plan Manual

# Results and benefits

- More information concerning general challenges of rural water supply in Karelia is gained as also detailed information of Sheltozero's water supply
- The most significant problems concerning water supply of Sheltozero are found and concrete improvement proposals are introduced
- Useless investments ending up into unremarkable results are avoided by observing the whole system (from catchment to consumer) and by taking into account all possible risks on every step of the system
- Systematical and well-planned monitoring and maintenance ensure possibility for safe drinking water also in long-term
- Local water supply gets more information of risk assessment and possible control measures and barriers