Experiences in the Area of Drinking Water and Sanitation in Sweden

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National Food Agency – The National Coordinator for Drinking Water

Climate and Energy Bill 2008/09:162

• Responsibility for drinking water issues in Sweden is fragmented among several central authorities
• NFA should be given responsibility for national coordination of drinking water issues
• Coordination should focus on adaptation to climate change as well as crisis and contingency planning
• The importance of engaging all key agents
Agents Responsibilities from Source to Consumer’s Tap

Surface water
Ground water

Water works
Treatment

Distribution

WS-installation

Swedish Agency for Marine and Water Management

National Food Agency

NFA

Boverket

Ministry of Rural Affairs

Swedish National Board of Housing, Building and Planning (Boverket)

Ministry of Health and Social Affairs

Responsibilities along the entire chain of drinking water – Boverket (planning), County Administrative Boards (21), Municipalities (290) River Basin Authorities (5)

Ramdirektivet för vatten 2000/60/EG

Översvämningsdirektivet

Vattentjänstlagen

Livsmedelslagstiftning

Dricksvattendirektivet 98/83/EG

Miljöbalken

VFF

Plan- och Bygglagen/ BBR

Boverket

NB Health and Welfare

National Food Agency (NFA)

Ministry of Health and Social Affairs
Swedish Network for Drinking Water

- STEERING COMMITTEE
- COORDINATION GROUP
  - SECRETARIAT
  - WORKING GROUPS
    - Research and development
    - Crisis preparedness
    - Strategic planning
    - Communications
    - Legal issues
Members of the Network to Date

<table>
<thead>
<tr>
<th>Styr- och koordineringsgrupp</th>
<th>Working groups (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swedish National Board of Housing, Building and Planning</td>
<td>Drinking water producers</td>
</tr>
<tr>
<td>Swedish Agency for Marine and Water Management</td>
<td>Universities</td>
</tr>
<tr>
<td>Regional counties/ River Basin Authorities</td>
<td>Consultancy firms</td>
</tr>
<tr>
<td>National Food Agency</td>
<td>National authorities</td>
</tr>
<tr>
<td>Geological Survey of Sweden</td>
<td>Municipalities</td>
</tr>
<tr>
<td>Swedish Association of Local Authorities and Regions (SKL)</td>
<td>(Approx. 20-30 members/group)</td>
</tr>
<tr>
<td>Swedish Institute for Communicable Disease Control</td>
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<tr>
<td>National Board of Health and Welfare</td>
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<tr>
<td>Swedish Water and Wastewater Association</td>
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Drinking water supply system

1,750 public waterworks in Sweden
About 8 million consumers of public drinking water
(15 % of the population depend permanently on small-scale water supply and sanitation)

Drinking water supply – challenges

**Drinking water related outbreaks in Sweden:**
- 1993-2011: **91 known outbreaks** (each year: 0-12 outbreaks, 100-27,000 people ill)
- 1998-2002: boiling recommendations of drinking water on average **60 times each year** (less during recent years)
- Outbreaks: 60% related to **raw water** and 40% related to the **distribution system**

**Challenges:**
- Waterborne outbreaks associated with small and large water works
  *AND* both ground and surface water-based water works
  *AND* outbreaks happen in all parts of Sweden
- Limited knowledge about endemic disease caused by drinking water

Drinking water supply – challenges

Outbreaks in small scale drinking water production (<1,000 ind.):  
- 66% of the outbreaks 
- 7% of all persons that got ill

Ref. D. Rosling. Rapportserie: Rapportering av dricksvattenkontrollen (offentlig kontroll). National Food Agency (supplementary data from Mats Lindblad (NFA))
Health surveillance of drinking water

**Yearly summarizing reports:**
- EFSA (zoonoses monitoring)
- National reports

**Ongoing projects on health surveillance:**
- EWS/SUMO/EBSS (*pre-study ongoing*)
- SLV24 (*pre-study ongoing*)
- Ale H₂O, FalunBorlänge H₂O (*endemic disease, pre-study ongoing*)
- Monitoring projects the raw water supplies (*ongoing*)
Hazards/risks in the drinking water supply – raw water

**Surface water:**
- Public sewage-treatment plants (1/3 of 105 water works)
- Sewage from private homes (2/3)
- Sewage from agricultural properties (1/3)
- Grazing cattle on the shores (2/3)
- Storm-water outflow (1/2) etc.

**Ground water and infiltrated ground water:**
- Risk of contamination is high especially during rainfall
82 % of the outbreaks during 1995-2009 were caused by drinking water from ground water-based water works (incl. infiltrated ground water)

Hazards/risks in the drinking water supply – treatment and distribution

**Microbial barriers in the treatment system:**
- 92 % of the public waterworks have at least *minimum requirements for microbial barriers (based on information from 1,586 water works)*
- Remaining 8 % produce water to about 1,5 million consumers! (*18 % surface water*)

**Note!** about 90 % of the 62 largest waterworks have decided about or are considering changes in the existing treatment processes in the next few years

**Distribution:**
- 34 % of the known outbreaks caused by drinking water during 1980-2009 have been traced to various incidents on the distributions system (*incidents on reservoirs, backpressure, etc.*)

Climate change in Sweden – drinking water supply

The maps show the change in percentage of the amount of water that flows into water bodies during the year.
Climate change

Increased flow:
- Mobilization of contaminants, microbiological and chemical
- Microbiological contamination due to sewage overflow
- Brown water rich of humic substances (treatment, quality)
- Limited possibilities to do infiltration since the saturated zone might increase

Increased temperature:
- More frequent blooms of cyanobacteria and new types
- Increased re-growth of microorganisms in the distribution systems
- Decreasing ground water levels and plan for alternative drinking water supplies

Who will pay the climate adaption? Producers? Consumers?
Water Safety Plans in Sweden

WSP (WHO: Water Safety Plans)
(KOM: RA/RM (Risk Assessment / Risk Management))

Water Protection Areas incl. Regulatory framework

HACCP (incl. conditions)

RSA

ODP

MRA
Nordic Network for Drinking Water

Initial input from Sweden to ÄK-Livs early 2012:

- **VAKA the water catastrophe group**
  The Swedish VAKA would likely have problems to handle a major outbreak in a city like Göteborg. Would have to enquire help from other Nordic Countries.

- **Education in the sector of drinking water**
  Swedish authorities and drinking water producers can not find qualified personal. Inspectors, engineers, researchers.

- **Material in Contact with Drinking water**
  Risk assessment and guide lines

- **Actions to minimize water borne disease facing deteriorating water quality in Nordic surface waters**
  Applied research programs targeting microorganisms, humic substances and algae

- **Information sharing between Nordic government agencies regarding transboundary risks and threats**
  For example when Norway advised hikers to boil the water in the mountain creeks.
Contacts for further info.

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