Sydvatten – collaborating for public welfare

Sydvatten AB is a municipally owned company producing drinking water for 900,000 inhabitants in the region of Skåne. The Company was founded in 1966 and is today one of Sweden’s largest producers of drinking water.

The mission of the company is to process and distribute drinking water of a high and consistent quality. Sydvatten supplies drinking water to 16 joint-owner municipalities in Skåne.

Sydvatten agreements

Sydvatten is managed by a board made up of representatives of the 16 municipalities. The company’s terms and conditions are regulated by a consortium agreement. Its regulations stated in its Corporation Charter.

As a corporation solely owned by the municipalities, Sydvatten believes that working together as an organisation for the benefit of common public welfare, is fundamental. The corporation’s aim is to promote and benefit the growth of the public water sector and to contribute towards the further development of the municipalities involved. The aim is to maximise profit but rather to ultimately benefit public welfare.

Sydvatten works constantly to ensure the supply of drinking water to its municipalities. Working with climate analysis and raw water strategy for Skåne are important future issues for Sydvatten in order to secure the municipalities’ water supplies, from a long-term and sustainable perspective. Sydvatten works to establish water protection areas in order to increase the protection of raw water sources. The establishment of redundancy of both raw water and drinking water in the whole of Sydvatten’s supply system, is an ongoing process. In order to reach a sustainable supply of water in the future, it has been decided that water from Lake Bolmen shall be utilised at the Vomb Plant; this is a decision of great strategic importance.

Investing in development

Sydvatten has taken the initiative to create a research company, Sweden Water Research, in order to meet future demands. Sweden Water Research combines expertise from the R&D departments from Sydvatten and the two regional water distributors NSVA and VA STD. Combined R&D enables the company to explore new and sustainable solutions in the water sector. Sweden Water Research, among many other things, ensure the prospect of sustainable and emission-free drinking-water production. Its R&D and innovation entities aim to expand in combination with other stakeholders, but also to actively implement its development plans within its own organisation. The research is integrated with national and international stakeholders, organisations and associations.

Sydvatten is a member of the European Benchmarking Co-operation, a forum where water and wastewater companies annually report relevant key figures regarding parameters relating to the industry. Members meet annually to discuss results, share experiences and get updates on current topics within water and wastewater issues.

The regulatory document for Sydvatten AB states that the company shall further enhance public welfare by promoting communication about tap water and by emphasising the value and high quality of Swedish tap water. As a result the scale and nature of the Drink Tap Water project that Sydvatten is conducting, is unparalleled in Sweden. Drink Tap Water is a collaborative project between Sydvatten and its owner municipalities, aimed at pupils aged between 12 and 16.

Think H₂O! results from collaboration with the University of Lund and aims to promote knowledge of the value of water among young people, as well as increase young people’s awareness, knowledge and understanding of the challenges surrounding water. With this project Sydvatten also aims to ensure competence in the water industry for the future.

The rights to use the lake water

All drinking water produced by Sydvatten is taken from Lake Bolmen in Småland and The Vomb Lake in Skåne. Should a problem arise regarding water supplies, it is possible to draw water from a reserve supply from Lake Rungsjön in Skåne. The water rights regulation for each respective lake determines the maximum quantity of water that may be drawn. The quantities drawn by Sydvatten are far below the specified limits.

Our business concept

Sydvatten guarantees safe and high-quality drinking water supplies to its own municipalities and other municipalities. By coordinating strategic perspectives, competence levels and financial resources, together with a strong emphasis on our responsibilities as owners and towards the inhabitants, we benefit the general greater public good.

Production objectives

Sydvatten’s joint-owner municipalities and customers are to receive a reliable supply of consistently safe, high-quality drinking water, and should never need to be affected by unscheduled stoppages.

Economic and financial objectives

Based on the prerequisites and the level of quality of organisation, costs set for the owner municipalities must be calculated at a level which is both reasonable and substantiated.

Changes in costs must as far as possible be offset within the organisation.

Cost adjustments must be considered as part of the running of the organisation and therefore justified by changes within the company or by altered prerequisites as regards the management of the organisation.

Sydvatten has a total of 80 employees.

Sydvatten – Southern Sweden Water Supply

Two modern, top-quality Water Works

Sydvatten owns and operates the Bolmen Tunnel, the two Ringsjö and Vomb Water Works, as well as the water mains system for the distribution of drinking water.

The water mains network is comprised to a large extent of dual pipes, this ensures a high level of delivery reliability.

Water from the Water Works is supplied to connection points in each municipality. The municipality is then responsible for the distribution of water to the end customer.

Approximately 75 million cubic metres of water are produced each year – corresponding to about 2,400 litres per second. The drinking water fulfils all quality requirements by a very wide margin, thus ensuring Sydvatten can maintain a high level of safety for water delivery and accessibility.

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Technical specifications

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<th>Lake surface</th>
<th>Water drawing rights</th>
<th>litres/sec</th>
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</thead>
<tbody>
<tr>
<td>Bolmen</td>
<td>1,650</td>
<td>184</td>
<td>6,000</td>
<td></td>
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<tr>
<td>Ringsjön</td>
<td>400</td>
<td>41</td>
<td>1,125</td>
<td></td>
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<tr>
<td>Vomb</td>
<td>12</td>
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<td>1,500</td>
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<tr>
<th>Water processing plants</th>
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<tr>
<td>Bolmen Tunnel: length 80 km, area 9 m²</td>
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<tr>
<td>Pipes: diameter 900–1400 mm, 35 km</td>
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<table>
<thead>
<tr>
<th>Water purification</th>
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<tbody>
<tr>
<td>Vomb: Filtration and water softening</td>
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<td>Ringsjön: Chemical residue and slow filters</td>
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<thead>
<tr>
<th>Drinking water mains</th>
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<tr>
<td>Maass: diameter 800–1400 mm, 185 km</td>
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<tr>
<td>Branch water mains: diameter 150–700 mm, 140 km</td>
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</tbody>
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| Average price of water | 3.46 SEK/m³, 0.36 EURO/m³ |

Planning drinking water pipe

Reservoir

Pumping station

Waterworks

Raw water tunnel pipe

Drinking water pipe

Planned drinking water pipe
This is how we produce drinking water at the Ringsjö Water Works

Water of high quality is taken from Lake Bolmen more than 100 kms away from Ringsjö Water Works.

In Sydvatten’s laboratories continuous tests are carried out for analysis of water according to Sweden’s National Food Administration norms for good drinking water. Furthermore regular water samples are taken for testing by independent, accredited laboratories.

The water is first filtered through a 25 km long pipe before it reaches the Ringsjö Water Works. After two to three months the water is first transported through a tunnel 80 km long. This takes around eight days. After which, the water is transported a final stretch through a 25 km long pipe before it reaches the Water Works.

The water seeps slowly through the alluvium of gravel and sand to a natural groundwater storage level. This process is called artificial groundwater infiltration.

The water is aerated to remove iron and manganese and then treated in the softening reactors to remove calcium ions, by adding sodium hydroxide. The calcium ions in the hard water are precipitated as lime on grains of sand and soft water is released at the top of the reactor. The grains of sand containing precipitated lime, sink to the bottom of the reactor, and are then removed.

The water is then filtered through the rapid sand filters to remove the remaining flocks. At this point the taste and smell of the water has improved and microorganisms are removed when the water passes through the slow sand filters.

The water is finally illuminated with UV light to remove any remaining microorganisms. The UV plant is the latest addition to the Ringsjö Water Works and it will be put into operation in 2016.

This is how we produce drinking water at the Vomb Water Works

Water is pumped from The Vomb Lake to micro-strainers where particles, mud and reeds are removed. The water is then channelled into 54 constructed infiltration basins covering a total surface area of 400,000 square metres.

The Ringsjö Water Works produces on average 1,400 litres drinking water per second. The drinking water is pumped to several cities in Skåne such as Björn, Eslov, Helsingborg, Höganäs, Kävlinge, Landskrona, Lomma, Lund, Malmö, Staffanstorp and Svalöv.

The Vomb Water Works produces on average 1,000 litres drinking water per second. The drinking water is pumped to several cities in Skåne such as Burlöv, Lund, Eslov, Malmö, Staffanstorp, Svedala and Vellinge.

The softening plant at the Vomb Water Works is one of Sweden's largest.

After adjusting the pH and alkaline levels (using limewater and carbonic acid) a small amount of disinfecting agent is added, before the finalised drinking water is pumped out to households and industry.

The softening plant at the Vomb Water Works is one of Sweden’s largest. The drinking water makes it possible to use reduced amounts of washing powder and detergents. Furthermore limescale deposits are reduced in pipes and household appliances. The softening plant at the Vomb Water Works is one of Sweden’s largest.

Lake Bolmen water is very soft. This means it requires less washing powder and less detergent. Which is a bonus for the environment and one’s budget.

After the softening reactors, the water is combined in the mixing chamber with a minor dosage of ferrous chloride to bind the remaining lime crystals together in flocks. These are then removed in the next stage using rapid sand filters.

Before the drinking water is pumped out to the pipe network, a secondary disinfectant is added to the water to prevent micro bacterial activities in the pipe network.

The softening of the water makes it possible to use reduced amounts of washing powder and detergents. Furthermore limescale deposits are reduced in pipes and household appliances. The softening plant at the Vomb Water Works is one of Sweden’s largest.

Lime from the softening process is collected, sent for recycling and used as an additive to improve the water quality of lakes and forests.