

# **Sydvatten – collaborating for public welfare**

Sydvatten AB is a municipally owned company producing drinking water for 1 million 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 17 joint owner municipalities in Skåne.

## Sydvatten agreements

Sydvatten is managed by a board made up of representatives of the 17 municipalities of Bjuv, Burlöv, Båstad, Eslöv, Helsingborg, Höganäs, Kävlinge, Landskrona, Lomma, Lund, Malmö, Skurup, Staffanstorp, Svalöv, Svedala, Vellinge and Ängelholm. 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 not 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 establishing of redundancy of both raw water and drinking water in the whole of Sydvatten's supply system, is an ongoing process. The two water treatment plants Ringsjö and Vomb are currently provided water from Lake Bolmen

and Lake Vombsjön respectively. Ringsjö water treatment plant has a reserve raw water source in Lake Ringsjön. 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 water treatment plant; a decision of great strategic importance.

# Investing in development

Interaction in a regional company creates prerequisites for long-term commitment and strategic 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 SYD. Combined R&D enable the management of skills support, long-term operational development and quality objectives. Sweden Water Research, among many other things, ensure the prospect of sustainable and emission-free drinkingwater 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.

A or Sydvatten AB states that the company hall further The regulato-

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 project aimed at pupils aged between 12 and 16.



Think H<sub>2</sub>O! 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.

Think H<sub>2</sub>O! is a course about water and water issues for teachers and their upper secondary school students aged between 17-19. Sydvatten offers a scholarship for a two-day stay at Lake Bolmen with a mix of course activities - workshops, lectures, role-play, experiments and outdoor cooking, all activities focus on water. Think H<sub>2</sub>O! started up in May 2014 and educates 900 students a year.

## The rights to use the lake water

All drinking water produced by Sydvatten is taken from Lake Bolmen in Småland and Lake Vombsjön in Skåne. Should a problem arise regarding water supplies, it is possible for one of the water treatment plants to use water from a reserve supply from Lake Ringsjön in Skåne. The water-rights regulations for each respective lake determine the maximum quantity of water that may be drawn. The quantities drawn by Sydvatten are far below the specified limits.

# Two modern, top quality Water Works

Sydvatten owns and operates the Bolmen Tunnel (an 80 km long tunnel between Lake Bolmen and Äktaboden, see map), the Ringsjö and Vomb water treatment plants, as well as the water mains system for the distribution of drinking water.

## Our business concept

Sydvatten guarantees safe and high quality drinking water supplies to its owner 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.

# a high level of delivery reliability. Water from the water treatment plants is supplied to connection points in each municipality. The municipality is

The water mains

network is comprised

to a large extent of

Approximately 78 million cubic metres of water are produced each year - corresponding to about 2,500 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.

# **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.

# **Technical specifications**

Water catchments km²	Catchment area km²	Lake surface	Water drawing rights - litres/sec
Lake Bolmen	1,650	184	6,000
Lake Ringsjön	400	41	2,000
Lake Vombsjön	450	12	1,500

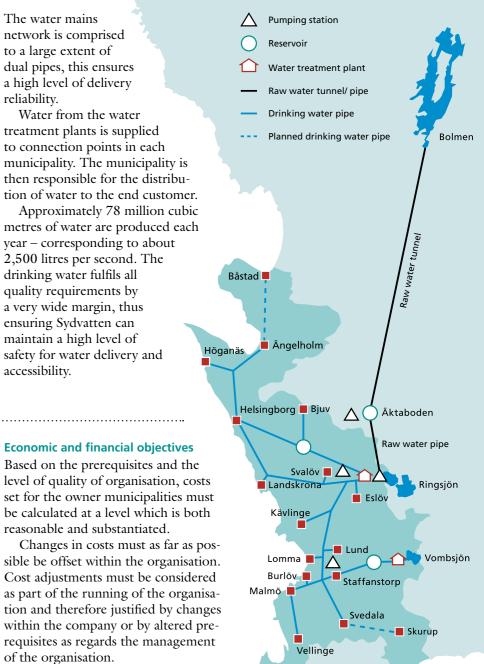
## Raw water distribution system

Bolmen Tunnel: length 80 km, area 9 m<sup>2</sup> Pipes: diameter 900–1400 mm, 60 km

# Sydvatten has a total of 109 employees.

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# Water purification

Plants	Processing
Vomb	Artificial infiltration and wate
	softening
Ringsjö	Chemical precipitation and
	slow sand filters

Capacity 1.800 litres/sec

2,400 litres/sec

# **Drinking water mains**

Mains: diameter 800-1400 mm, 185 km Branch water mains: diameter 150-700 mm, 140 km

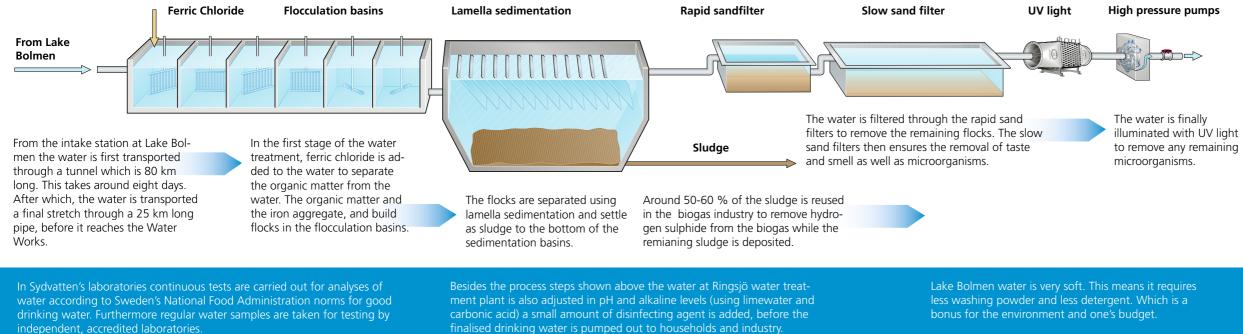
Average price of water to the municipalities 4,15 SEK/m<sup>3</sup>, 0,41 EURO/m<sup>3</sup>



Water of high quality is taken from Lake Bolmen more than 100 kilometers away from Ringsjö water treatment plant.

independent, accredited laboratories.

# This is how we produce drinking water at the **Ringsjö water treatment plant**



This is how we produce drinking water at the Water is pumped from Lake Vombsjön to micro-strainers where particles, mud and reeds are removed. The water is then channelled into 54 constructed infiltration basins covering **Vomb water treatment plant** a total surface area of 400,000 square metres. Mixing chamber Wells Lake Softening Infiltration Vombsjön Aeration reactor **Rapid sand filters** Water Reservoir Softened water The water seeps slowly through **High Pressure Pumps** Granules of the alluvium of gravel and sand ecipitated lim to a natural groundwater storage 🐇 level. This process is called artificial Hard NaOF groundwater infiltration After two to three months The water is aerated to remove iron and manganese and After the softening reactors, the Before the drinking water is pumped out to water is combined in the mixing the water is pumped up then treated in the softening reactors to remove calcium the pipe network, a secondary disinfectant, from one of the 114 wells ions, by adding sodium hydroxide. The calcium ions in the chamber with a minor dosage of monochloramine, is added to the water to

and into the Vomb water treatment plant for final processing.

hard water are precipitated as lime on grains of sand and the softened 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.

ferric chloride, to bind the remaining lime crystals together in flocks. These are then removed in the next stage using rapid sand filters.

prevent micro bacterial activities in the pipe network

In Sydvatten's laboratories continuous tests are carried out for analyses 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.

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

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 treatment plant is Sweden's largest.

The Ringsjö water treatment plant produces on average 1,500 litres drinking water per second. The drinking water is pumped to several cities in Skåne such as Bjuv, Eslöv, Helsingborg, Höganäs, Kävlinge, Landskrona, Lomma, Lund, Malmö, Staffanstorp and Svalöv.



The Vomb water treatment plant produces on average 1,100 litres drinking water per second. The drinking water is pumped to several cities in Skåne such as Burlöv, Lund, Eslöv, Malmö, Staffanstorp, Svedala and Vellinge