

Hammarby Sjöstad

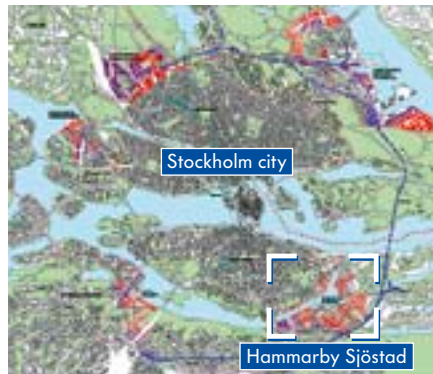
– a new city district with emphasis on water and ecology



Hammarby Sjöstad – a new city district inspired by water

The water has inspired the name of the entire project – the town around the lake Hammarby Sjö.

The first drawings of what would become Hammarby Sjöstad were pencilled in back in 1990. The idea was to show a unique opportunity – expanding the inner city with a focus on the water, while regenerating an old industrial and harbour area into a modern neighbourhood.



to Stockholm's urban growth – a modern, semi-open, block-based city, a combination of a closed, traditional inner city with more modernistic and open planning. The inner city street dimensions, block sizes, building heights, density and functionality mix are integrated with a new openness, waterfront views, parks and sunlight.

Limited building depths, recessed penthouse flats, maisonettes, large balconies and terraces, big windows, flat roofs and light-coloured rendering on water-facing façades



Once fully built, Hammarby Sjöstad will have about 11,000 residential units for just over 25,000 people and a total of about 35,000 people will live and work in the area. Hammarby Sjöstad will be fully built about 2017.

Architecture and urban construction

Hammarby Sjöstad is Stockholm's biggest urban development project for many years. The area's location as a natural continuation of Stockholm's inner city has shaped the infra-

structure, urban planning and design of the buildings.

This expansion has involved extensive development of the infrastructure, with traffic barriers removed and the old industrial and terminal areas phased out, concentrated or given a new purpose. Stockholm and Nacka municipalities have reached an agreement on how the areas either side of the municipal boundary should develop and interact. Hammarby Sjöstad adds a new "growth ring"

embody different applications of a modernistic architectural programme, as does the emphasis on durable materials such as glass, wood, steel and stone.

Traffic and services are concentrated along a three-kilometre avenue linking Hammarby Sjöstad together, from Mårtensdal to Danvikstull.

Parks, quays and walkways in different styles have been laid out around Hammarby Sjö. The water areas at the heart of the town comprise a concentrated visual park – the city district's blue eye.

– a modern water city, close to Stockholm City

Along Hammarbyleden taller buildings facing the water are built in a classic inner city style that harmonises with the large-scale quay facilities and large open water areas.

The milieu on Sickla Udde and alongside Sickla Kanal is more intimate and small-scale, with natural shorelines. Here, development is gradually downscaled towards the shorelines, and then follows the line of the land as it rises towards the avenues' crest and Sickla Park.



Sickla Kaj's buildings are more city-like. Large-scale, multi-functional buildings have been built along the avenue, with small-scale backstreet and courtyard houses built between the quay and Sjöstadsparterren, the new park walkway.

Dense, city-style environments are also being built in Hammarby Gård around a lens-shaped green space with a newly-created pool.

Two special projects are in progress in the Lugnet area. The first is Lugnets Terrass, a sea park with jetty decking, pergolas and flowerbeds bordering the avenue.

The other involves the construction of Ham-



marby Sjöstad's most unique profile building, in the form of a perforated cube. The building is twice the height of the surrounding development.

Henriksdalshamnen is one of the final planning areas in Hammarby Sjöstad. The plan entails a substantial expansion of the quays to include, among other things, a harbour basin with space for restaurants and small boats. The plan is that the Värmdöleden highway will run underground through a tunnel under Henriksdalsberget, "Tvärbanan" (the light rail link) will be extended towards Slussen, and the avenue will be extended to a new mall facility at Danvikstull.

– extensive public transport, close to culture and nature

Substantial investments have been made in public transport as part of the overall objective of creating an eco-friendly city district. The goal is for 80% of residents' and workers' journeys to be made by public transport, on foot, or by bicycle by 2010.

The eco-friendly adaptation also involves a major investment in green spaces, walkways, several large parks, a reed park with wooden jetties, etc.



Trams, ferries and carpools

"Tvärbanan", the light rail link from Alvik, has a central route running through Hammarby Sjöstad along the unifying avenue and bus traffic has been carefully thought out, offering several routes into Stockholm city.

A ferry traffics Hammarby Sjö throughout the year, from early in the morning until midnight. During the summer season, a ferry also runs from Hammarby Sjöstad to Nybroviken.

A carpool is also open to everyone living and working in the area. Around 450 members have already joined the carpool, which now has 25 cars at its disposal.



A new highway, Södra Länken, has been designed in line with the City's environmental requirements, and has accordingly been lowered and bridged by two ecoducts to Hammarbybacken and the large Nacka nature reserve.

Services in Hammarby Sjöstad

The area has had preschool and elementary school facilities for some years now, with Sjöstadsskolan the most recently opened (2007). There is a retirement home on the banks of Sickla Kanal, and health care facilities are provided in the area.

Commercial services are gradually expanding and the area now has a reasonably wide commercial and retail offering, in addition to the usual convenience goods outlets. The Sickla Köp kvarter mall, which is easily accessible to Hammarby Sjöstad residents, is home to the majority of the major retail chains.

Leisure and culture

There are around 100 mooring places for small boats along the Sickla Kaj canal. Sjöstadshallen, a sports hall to the north-east of Sickla Udde's oak-forested hill, was opened in October 2005. Jogging tracks that cross two ecoducts over the Södra Länken highway lead directly over to the Nacka nature reserve. During the summer, Sicklasjön lake is a tempting destination for swimmers, while in the winter, Hammarbybacken's slalom slopes are within walking distance.



There is a library at Sickla Kaj and a new culture and theatre centre is built in Lugnet. Kulturama and Fryshuset not only provide educational courses, they also offer cultural activities, mainly for children and young people. The Sofia parish is represented in the chapel, Sjöstadskapellet. The old Dieslverkstaden factory building, which houses theatrical venues, a library, concert venues and cultural workshops, is also close by in the Sickla area.

All new construction offers access for the disabled, in line with the City's plan for people with disabilities.

Hammarby Sjöstad

– with new and integrated environmental solutions

The City of Stockholm has imposed stringent environmental requirements on buildings, technical installations and the traffic environment. A specific environmental programme was drawn up for Hammarby Sjöstad with the aim of halving the total environmental impact in comparison with a district built in the early 1990s.

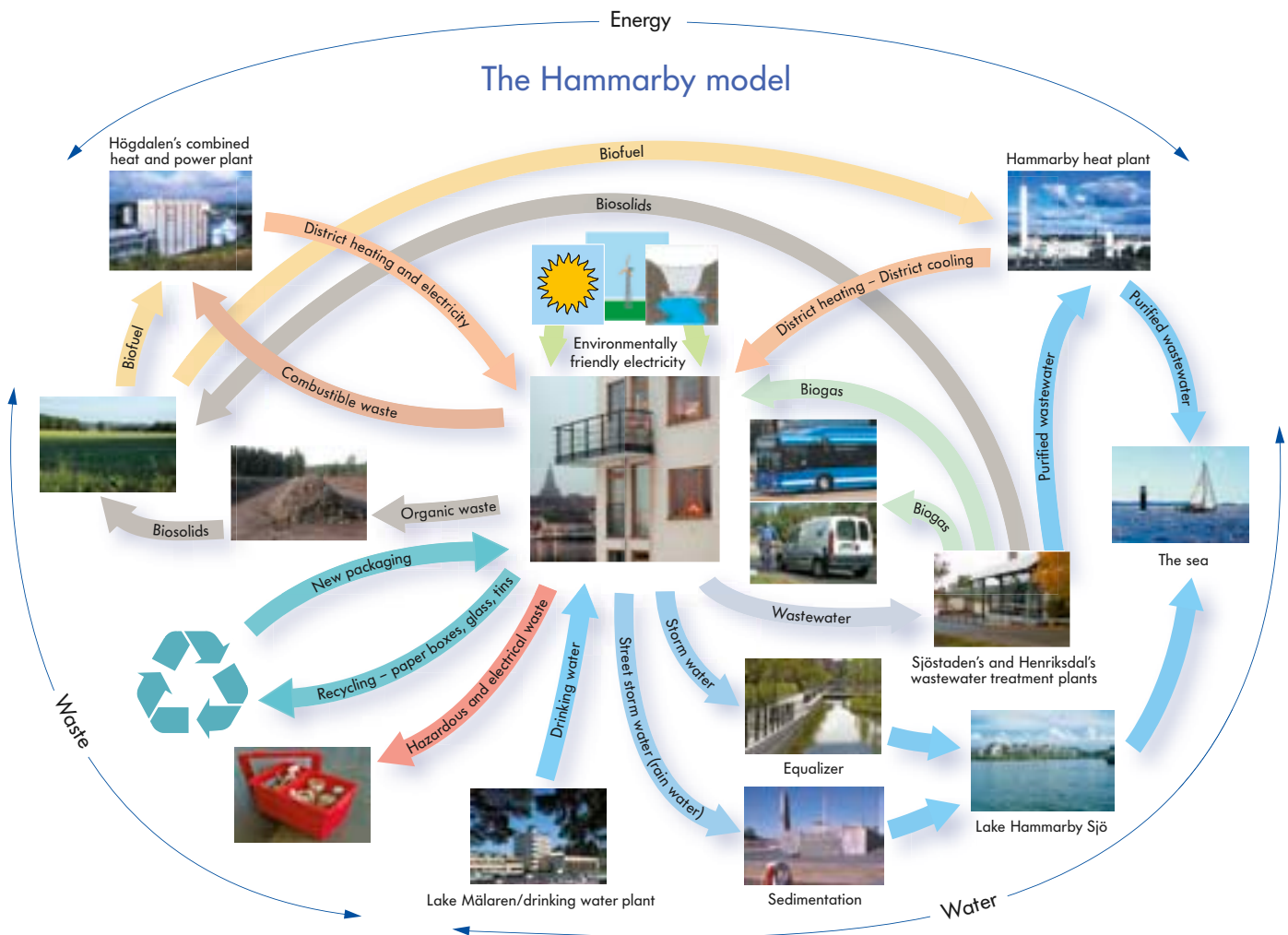
The strict environmental requirements demanded completely new environmental solutions. The Hammarby Sjöstad project office

employed a new methodology under which staff from different administrations/authorities sat in the same premises, right from day one of the project. The work has been conducted on an interdisciplinary basis, thereby substantially accelerating the decision-making process and enabling the project to run extremely smoothly. The planning process was unique and resulted in new and integrated environmental solutions whereby the resources provided by one player are utilised by another.

The Hammarby model

Hammarby Sjöstad has its own eco-cycle, the Hammarby Model, which outlines environmental solutions for waste, energy, water & sewage.

The Swedish Trade Council has developed a model to build the sustainable city – Symbiocity, which is built on the experiences from Hammarby Sjöstad. Read more about this on www.symbiocity.org.



Energy

- Combustible waste is converted into district heating and electricity.
- Biofuel from nature is converted into district heating and electricity.
- The heat from the treated wastewater is converted into district heating and district cooling.
- Solar energy is converted into electrical energy or used to heat water.
- Electricity shall be "Good Environmental Choice"-labelled, or equivalent

Water & Sewage

- A pilot sewage treatment plant facility has been built to evaluate new sewage treatment techniques.
- Biogas is extracted from the digestion of sewage sludge.
- The post-extraction sludge – the biosolids – is used as a fertiliser.
- Rainwater from courtyards and roofs is not drained to the wastewater treatment plant, but into Hammarby Sjö.
- Rainwater from streets is treated locally/settled and then drained into Hammarby Sjö, not to the wastewater treatment plant.

Waste

- An automated waste disposal system with different refuse chutes, block-based recycling rooms, and area-based waste collection points help the residents to sort their waste at source.
- Combustible waste is converted into district heating and electricity.
- Organic waste is converted/digested into biosolids and used as fertiliser.
- All recyclable material is recycled: newspapers, glass, cardboard, metals, etc.
- Hazardous waste is incinerated or recycled.

Environmental solutions – Water and sewage

One of Hammarby Sjöstad's environmental goals is to reduce water consumption by 50%. In Stockholm, the normal use is 200 litres water/person/day, but our aim is to reduce this figure to 100 litres. Thanks to eco-friendly installations, consumption levels are currently approximately 150 litres/person/day.

Another goal is cleaner sewage; fewer contaminants are to be dispersed into the Stockholm archipelago via our treated wastewater, and a cleaner residual product, biosolids, can be reused on agricultural land. The level of hazardous substances is to be reduced by 50%, and 95% of the phosphorus is to be separated out and recycled for agricultural use.

Cutting edge technology evaluated

Sjöstadsverket, a new test wastewater treatment plant for wastewater from the equivalent of 600 people in Hammarby Sjöstad, has been built to evaluate new technology. The four separate treatment lines under evaluation contain chemical, physical and biological processes. The wastewater that goes to the local wastewater treatment plant comes solely from housing in the area, and does not come from storm water and industries. This



means that the wastewater should, hopefully, contain a minimum of contaminants.

Biogas is extracted from sewage sludge

Biogas is extracted from the digestion of sewage sludge from the wastewater treatment plant. Biogas, the most environmentally friendly form of fuel currently available, is primarily used as vehicle fuel in buses and cars but also in approximately 1,000 gas stoves in Hammarby Sjöstad.



Storm water

All storm water, rainwater and snowmelt is treated locally, and the system is referred to as LOD (the Swedish acronym for "local storm water treatment").

Storm water from developed areas is infiltrated into the ground or drained to Sickla Canal, Hammarby Canal or Danvik Canal. A storm water canal runs through the park Sjöstadparterren (the Sjöstaden parterre). The water is drained from the courtyards via numerous small gutters and is then carried on to Hammarby Sjö through a water ladder designed by the artist, Dag Birkeland.

Storm water from the streets is drained into two closed settling tanks. The water is allowed to remain there, to let the contaminants sink to the bottom (settling), and then drained out into the canals.

Green roofs

The green roofs with sedum plants that are visible on many of the buildings are designed to collect the rainwater, delaying and evaporating it. At the same time, the roofs form living green areas in the cityscape.



Environmental solutions – Waste

These days waste is no longer waste, it is a resource that is being utilised. New things are being produced from recycled materials so we can be more economical with nature's resources.



Three-level waste management

In Hammarby Sjöstad, waste is managed at three different levels: building-based, block-based, and area-based.

Building-based separating at source

The heaviest and bulkiest waste; combustible waste, organic waste and newspapers, catalogues, paper, etc, is separated and deposited in different refuse chutes in or adjacent to the buildings.

Block-based recycling rooms

The types of waste that do not belong in the building-based refuse chutes can be left in block-based recycling rooms. These types of waste include: packaging, bulky waste, electrical and electronic waste.

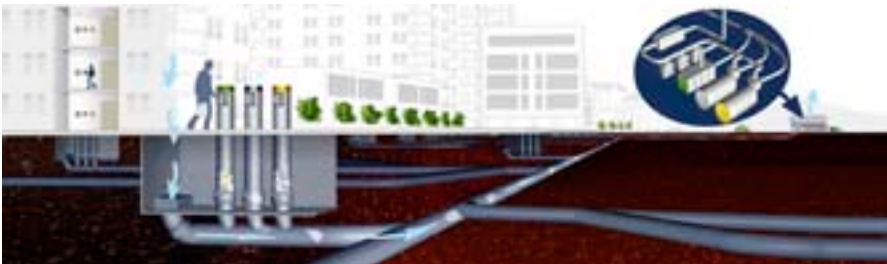


Area-based hazardous waste collection point

Hazardous waste, e.g. paint, varnish and glue residues, nail polish, solvents, batteries and chemicals must be separated out and handed in at the hazardous waste collection point in GlashusEtt, the area's environmental information centre.

Automated waste disposal system

Refuse chutes are linked by underground pipes to a central collection station to which the waste is carried by vacuum suction. An advanced control system sends the waste to large containers, one for each fraction. The refuse collection vehicles can collect the containers without driving into the area and the refuse collection workers avoid heavy lifting.



Environmental solutions – Energy

When the construction work on Hammarby Sjöstad is completed, the residents themselves will produce 50 per cent of the fuel required to produce the energy they need. Treated wastewater and domestic waste will be converted into heating, cooling and electricity by Fortum. New technology is also being tested in the area, such as fuel cells, solar cells, and solar panels.

District heating

The Högdalen combined heat and power plant uses domestic waste as an energy source (fuel) to produce district heating and electricity. The heat in the treated wastewater from the Henriksdal wastewater treatment



plant is used in the production of district heating in the Hammarby heat plant.

District cooling

Having been cooled down by the heat pumps, the treated wastewater can also be utilised by the Hammarby heat plant – waste cold, a pure waste product, is used to cool the water that circulates in the district cooling network in Hammarby Sjöstad.

Solar cells, solar panels and fuel cells

Solar cells convert the sun's luminous energy into electrical power. Solar cells have been installed on several façades and roofs. Two of the buildings on Sickla Kanalgrata, for example, have been fitted with solar cells that provide the energy needed for their public areas.

390m² of south-facing solar panels have been installed on the roof of the Viken block. They exploit the sun's heat and use it to heat the hot water supply. The solar panels produce half of the energy required to meet the building's annual hot water requirement. There is a fuel cell installed in GlashusEtt, the area's environmental information centre.





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